DEC 28 1911

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Rock Products

DEVOTED TO

Concrete and Manufactured Building Materials

Volume XI. CHICAGO, ILL, DECEMBER 22, 1911. Number 6.

CAROLINA PORTLAND CEMENT COMPANY

We are the largest distributers of Portland Cement, Lime Plaster, Fire-brick and General Building Material in the Southern States, and have stocks of Standard Brands at all of the Atlantic and Gulf Seaports, and at our interior mills and warehouses, for prompt and economical distribution to all Southern territory. Write for our delivered prices anywhere. Also Southern agents for the "Dehydratine's" waterproofing material. "Universal," "Acme" and "Electroid" Brands Ready Roofing. Get our prices.

Charleston, S. C. Birmingham, Ala. Atlanta, Ga. New Orleans, La

DEXTER Portland Cement THE NEW STANDARD

Sole Agents SAMUEL H. FRENCH & CO. Philadelphia

UNION MINING COMPANY

Manufacturers of the Celebrated

MOUNT SAVAGE FIRE BRICK GOVERNMENT STANDARD

DEVOTE a special department to the manufacture of Brick particularly adapted both physically and chemically to

Lime Kiln and Cement Kiln Construction

Large stock carried. Prompt shipments made. Write for quotations on Standard and Special shapes, to

UNION MINING CO., Mount Savage, Md.

CAPACITY, 60,000 PER DAY. ESTABLISHED 1841.

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RELIANCE

FOR GRIFFIN TUBE AND BALL MILLS

CHICAGO BELTING CO.

PURE OAK TANNED LEATHER BELTING

Send for Our Illustrated Catalog

111 North Green St., CHICAGO

Branches: NEW YORK PHILADELPHIA NEW ORLEANS PORTLAND, OREGON

FOR DAMP PLACES

SEA LION LEATHER BELTING

READ ARTICLE ON

TISCO MANGANESE STEEL CHAIN

PAGE 37 THIS ISSUE

HARBISON-WALKER

LIME AND CEMENT KILN LININGS

YOU *know* what the linings for your cement and lime kilns cost per thousand brick but *do* you know how much per *ton* output? *That* is the cost that is vital, that's why we are anxious you *should* know. Write us.

Harbison-Walker Refractories Co.

PITTSBURGH :: :: PENNSYLVANIA

HIGHEST GRADE PORTLAND CEMENT MANUFACTURED

ALLENTOWN PORTLAND CEMENT COMPANY

CAPACITY 1,000,000 BARRELS YEARLY

PHOENIX PORTLAND CEMENT COMPANY

Phoenix Portland Cement UNEXCELLED FOR ALL USES.

Manufactured by

PHOENIX PORTLAND CEMENT CO.

NAZARETH, PA.

Sole Selling Agent, WILLIAM G. HARTRANFT CEMENT CO

Real Estate Trust Building, PHILADELPHIA, PENNSYLVANIA.

Ottawa Silica Co.'s Washed White Flint Sand

Is used for sawing stone in more than a dozen states. Cuts more and lasts longer than any other sand on the market. Unexcelled for Roofing, Facing Cement Blocks, White Plaster, etc. Freight rates and prices on application.

OTTAWA SILICA CO., Ottawa, Ill.

The Ironton Portland Cement Co.

Manufacturers of the

Celebrated Limestone Brand of Portland Cement

LIMESTONE BRAND — STRENGTH, DURABILITY AND FINENESS — PORTLAND CEMENT.

Used by the Railroads in Kentucky, Ohio, West Virginia, and Virginia during the past five years.

Cement as finely ground as any on the market.

Guaranteed to pass all the standard specifications.

Plant located at Ironton, O., within easy access to seven States, namely, Ohio, Indiana, Kentucky, West Virginia, Virginia, Tennessee and North Carolina.

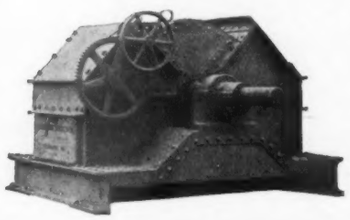
Shipments via the N. & W. Ry., C. & O. Ry., C. H. & D. Ry., D. T. & I. Ry., or Ohio River. **Write for Prices**

The Ironton Portland Cement Co.

Ironton, Ohio

"PENNSYLVANIA"

HAMMER CRUSHERS



For Pulverizing Limestone, Lime, Cement Rock, Marl, Shale, Etc.

Main Frame of steel, "Ball and Socket" Self aligning Bearings; forged Steel Shaft; Steel Wear Liners; Cage adjustable by hand wheel while Crusher is running.

No other hammer Crusher has such a big Safety Factor.

PENNSYLVANIA CRUSHER CO.

Philadelphia

New York Pittsburgh

CANADA CEMENT COMPANY LIMITED — PORTLAND CANADA CEMENT — MONTREAL

MILLS

Montreal	Port Colborne
Hull	Shallow Lake
Belleville	Maribank
Lakefield	Winnipeg
Calgary	Exshaw

For Prices Any Where in CANADA

Write or Wire Our Nearest Sales Office

Canada Cement Company LIMITED

Montreal - Toronto

Winnipeg - Calgary

THE DEALER WANTS THE BEST

advertising to create a demand for his goods, shipping facilities to be able to deliver on time, and quality to satisfy his customers and so create a further demand.

Quality and **Quantity**

Shipping Facilities

place **Lehigh Portland Cement** in the forefront and make it the dealer's logical choice.

Write today for our bulletin that tells how we cooperate with you

LEHIGH PORTLAND CEMENT CO.

CHICAGO, ILL. **ALLENTOWN, PENNA.**

ONE GRADE—ONE BRAND

ALPHA PORTLAND CEMENT COMPANY — ALPHA PORTLAND CEMENT — GENERAL OFFICE EASTON, PENNA. — MANUFACTURERS

Alpha Portland Cement

Best in the World for Sidewalks

Write for our Handsomely Illustrated Book. Sent Free.

General Offices: No. 7 Center Square, EASTON, PA.

——SALES OFFICES:——

The Oliver Bldg., PITTSBURGH.
Builders Exchange, BALTIMORE.
Marquette Building, CHICAGO.
Harrison Building, PHILADELPHIA.
Builders Exchange, BUFFALO.
Board of Trade Bldg., BOSTON.
Hudson Terminal Bldg., N. Y.
Nat'l Bank Bldg., SAVANNAH, GA.

NORTHWESTERN STATES PORTLAND — PORTLAND — NORTHWESTERN — CEMENT — MASON CITY, IA. — CEMENT CO. — Cowham System

"THE BEST IS NONE TOO GOOD"

HIGHEST GRADE of Portland Cement

Every Barrel Absolutely Uniform.

R. R. facilities especially adapted for prompt shipments in the northwest.

Capacity 1,500,000 bbls. Yearly.

NORTHWESTERN STATES PORTLAND CEMENT COMPANY

MASON CITY, IOWA

WOLVERINE PORTLAND CEMENT CO. — WOLVERINE — PORTLAND CEMENT — GENERAL OFFICES, COLDWATER, MICH., U.S.A. — REGISTERED TRADE MARK

"WOLVERINE"

The Alright Cement

MADE RIGHT SOLD RIGHT
WORKS RIGHT
WEARS RIGHT

The Best is None Too Good For You. Insist Upon

"WOLVERINE"

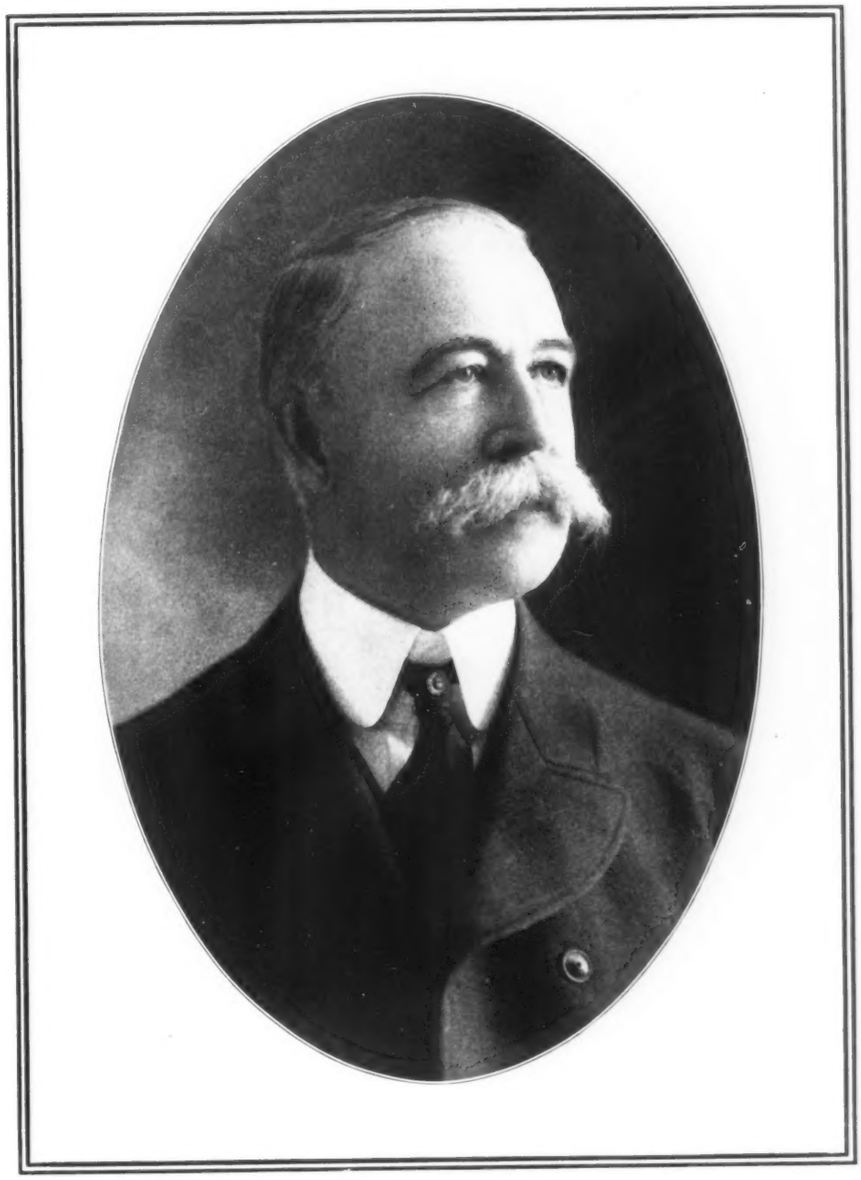
Write for Booklet and Quotations.

Factories at Coldwater and Quincy, Mich. Capacity 3500 Daily.

WOLVERINE PORTLAND CEMENT COMPANY

W. E. COBEAN, Sales Agent, Coldwater, Michigan

Main Office, Coldwater, Mich.



A. HENLEY

LAWRENCE, KAS.

Rock Products

DEVOTED TO

Concrete and Manufactured Building Materials

Volume XI | CHICAGO, ILL., DECEMBER 22, 1911 | Number 6

THE WORLD'S GREATEST GYPSUM MILL

New Plant of the United States Gypsum Company of Fort Dodge, Iowa, Built on Unit System and is Absolutely Fireproof.

Pericles found Athens a city of mud and left it a city of marble. The United States Gypsum Company found Fort Dodge a city of "gypsum" and have made it a giant figure in the gypsum industry.

This is an age of great things. The builders of the Egyptian pyramids, the Obelisk, or any of the other ancient landmarks of world-fame, would have found their task comparatively playwork could they have had access to the inventions and facilities of modern man.

Through experience extending over a great many years in the operation of several plaster mills west of the Mississippi, the United States Gypsum Company determined that one of the best gypsum deposits in the West, in point of quality, was to be found at Fort Dodge, Iowa. This, coupled with the fact that they had practically the only inexhaustible deposit now owned in that territory and its location to important markets made the development of this field very desirable.

All the mills operating in this particular territory, including their several mills, were built of wood and thereby subject to the disastrous fires which are constantly a great menace to a plaster mill of wood and other inflammable construction. Therefore, in order to properly protect their business and customers and be in position to always supply materials of very highest quality and of uniform nature, and also place themselves in position to meet any demands of the rapidly growing trade, the United States Gypsum Company decided to build on this inexhaustible deposit a fireproof mill which could not burn, and on the unit system, making it possible to easily increase the capacity to meet any demands of plaster consumption in this section of the country. This property is the largest and most modern gypsum producing plant in the world and represents the standard type of mill construction that has been adopted by the United States Gypsum Company.

The project was conceived about three years ago, and, after receiving careful attention of the operating and sales department, in order to adjust the design of the mill to the demands of the trade, the matter was handed over to the engineering department. The entire equipment, to handle the material from the time it leaves the mine until it is delivered as finished product in cars, together with all buildings to contain it, was designed exclusively by their own engineers and built according to their special specifications. These steps were found necessary in order to obtain machinery that would be applicable to manufacture the very best grade of goods at an economical cost and to fully take care of all possible trade demands that might be brought upon the mill.

VIEW IN MINES OF U. S. GYPSUM COMPANY, FORT DODGE, IA.

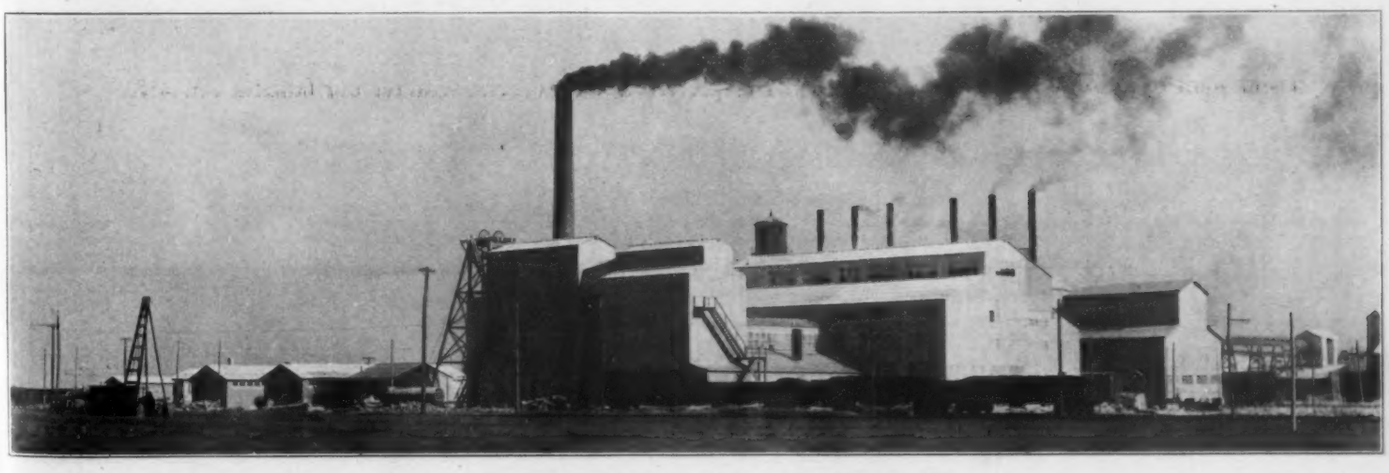
The construction work of the mill was started about the first of April, 1910, and the mill was under trial operation on the 15th of December of the same year, and in full operation soon thereafter.

In order to supply a mill of such large capacity it was found necessary to sink a new shaft and develop a new mine. This work was done while the mill was in process of construction. The result is that the shaft now in operation is the largest shaft handling gypsum in the world. It is equipped with a steel head house and operated by a special hoisting engine which will raise a car from the bottom to the top in five seconds.

The rock is drilled and blasted at the mine working faces, where it is loaded into special steel cars. These cars are collected by an electric mine locomotive and delivered to the bottom ready for hoisting. As soon as the car is placed on the cage it is automatically clamped and hoisted to the top by a self-dumping cage, where it is dumped into weigh baskets and delivered to the mill without touching the car or handling the rock by human effort.

The mine that connects to the bottom of the shaft is laid out with special reference to a large capacity and according to the very latest mining methods, with a view to getting this large capacity with the minimum of effort. Fresh air and dry working places are to be found throughout. The whole mine

(Continued on Page 54.)



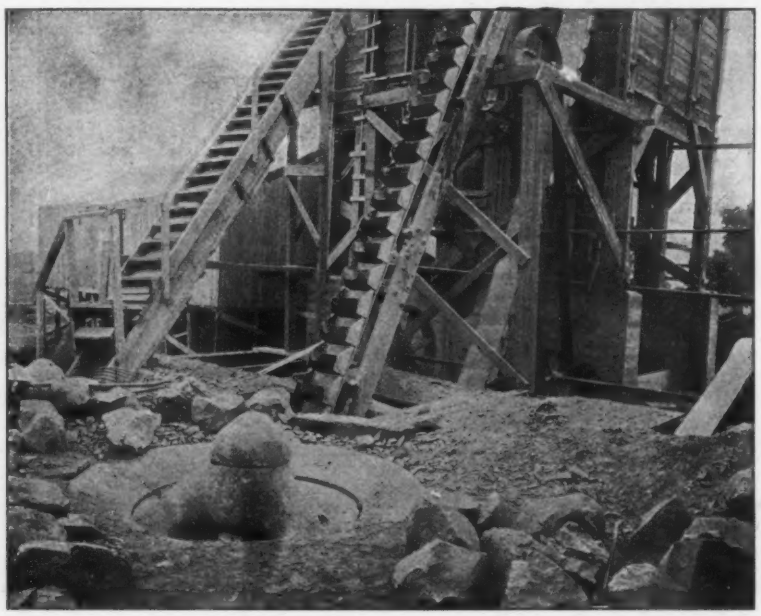
U. S. GYPSUM COMPANY'S PLANT AT FORT DODGE, IOWA.

NOT AN ARGUMENT—A PROOF

On the Panama Canal . . . 80 per cent.
On the Catskill Aqueduct . . . 75 per cent.
On the New York State Barge Canal, 50 per cent.

of all the ROCK CRUSHING is being done with

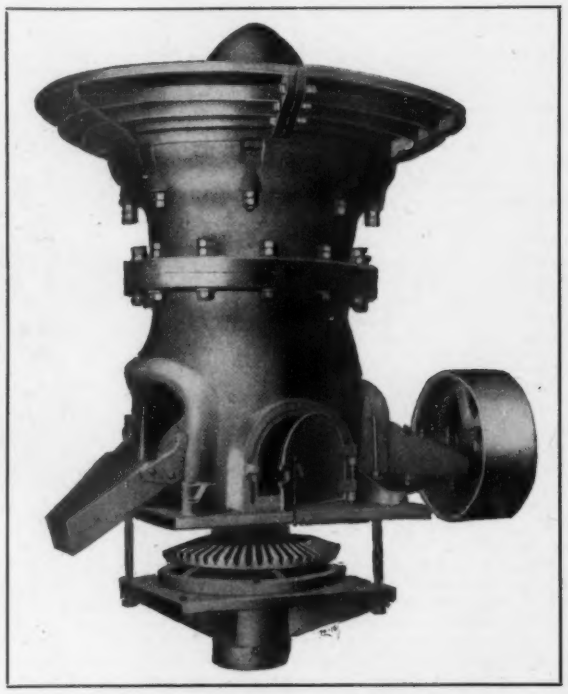
McCULLY GYRATORY CRUSHERS



McCully Gyratory Crushers at Work on the Catskill Aqueduct Near Newburg, N. Y.

Could Anything Be More Convincing of Their Merits?

Over 50 McCully Crushers Are Being Used at These Three Places Alone.



McCully Gyratory Crusher—Standard Discharge
(Showing Bottom Dropped.)

Of course these are exceptionally large jobs.

That is just why we mention them. There are a great many different contractors involved and it is evident how many of them agree as to which is THE crusher. Moreover it is for such large jobs that the greatest care is taken to select the BEST crusher. Only the best is good enough.

On small jobs this is not so important. But—we could go on and give a long list of smaller jobs where our crushers are the ONLY ones used.

If you want to know WHY the McCully Crusher is preferred to all others, send for our bulletin PM-458.

Power & Mining Machinery Company

Cudahy, (Suburb of Milwaukee) **Wis., U. S. A.**

District Offices: New York, Chicago, Birmingham, El Paso, San Francisco

WESTERN SALES OFFICES: United Iron Works, Spokane, Wash.; Moran Engineering Company, Seattle, Wash.

PRINCIPAL PRODUCTS

Rock Crushing Machinery **Mining and Smelting Machinery** **Cement Making Machinery**
Wood Impregnating Plants **Power Transmitting Machinery** **Loomis-Pettibone Gas Generators**
Suction Gas Producers **Cyanide and General Steel Tank Work**

PM136.8

"Forgot to Oil It—"

The oft-repeated story of the man whose plant is out of order. Don't rely on memory, and you'll avoid expensive shut-downs. In the Symons Breaker, lubrication is automatic. The oil pump's memory never fails. Read the rest.

There Is Only One Crusher with an *Automatic* Oiling System

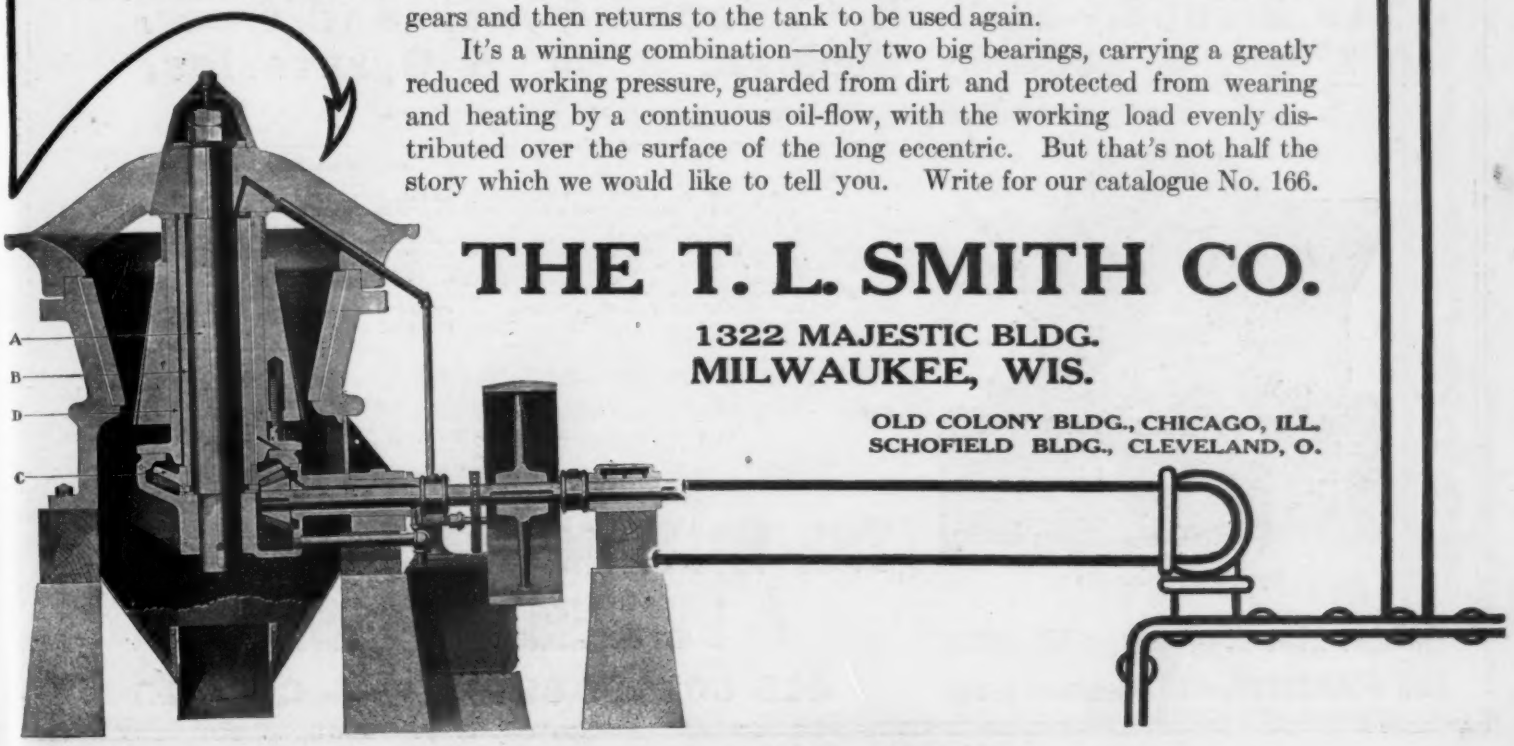
The Crusher's Life Blood is Oil.

Rock breakers work under most trying conditions, continually enveloped in a cloud of dust. It is very difficult, even with the "tightest fit," to exclude dirt from the running parts. The bearings are subject to immense pressures, very irregularly applied. When you add to these unfavorable conditions the further danger of careless supervision, any mechanic will admit the vital importance, to the practical quarryman, of the automatic oiling system peculiar to the

SYMONS CRUSHER

The oil pressure excludes the dirt. Where oil cannot get out, dirt cannot get in. The steady flow of oil (volume variable to suit conditions) washes the bearings clean, smooth and cool, immerses the gears and then returns to the tank to be used again.

It's a winning combination—only two big bearings, carrying a greatly reduced working pressure, guarded from dirt and protected from wearing and heating by a continuous oil-flow, with the working load evenly distributed over the surface of the long eccentric. But that's not half the story which we would like to tell you. Write for our catalogue No. 166.

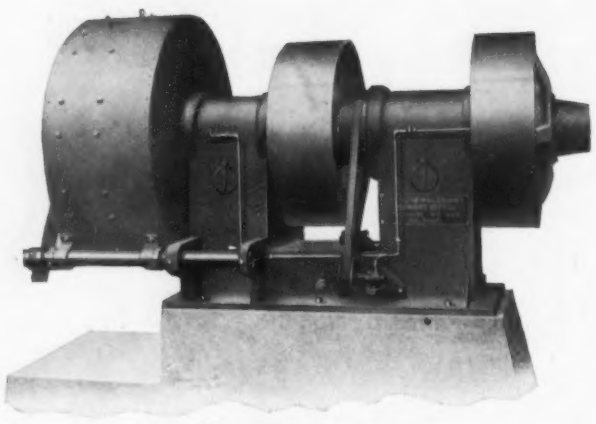


THE T. L. SMITH CO.

1322 MAJESTIC BLDG.
MILWAUKEE, WIS.

OLD COLONY BLDG., CHICAGO, ILL.
SCHOFIELD BLDG., CLEVELAND, O.

To Double the Output of Your Crushing Plant and Improve Your Market:



Built in Five Sizes

1. Open your gyratory crushers to make product twice as large as you are now making. This doubles capacity.
2. Return the over-size to **Symons Disc Crushers** reducing the product to any sizes desired by your customers. This improves the demand.

The hardest work for the gyratory crusher is to make small sizes. That's the specialty of the **Disc Crusher.** They work well together.

The **Disc Crusher** is adjustable. It is **Durable.**

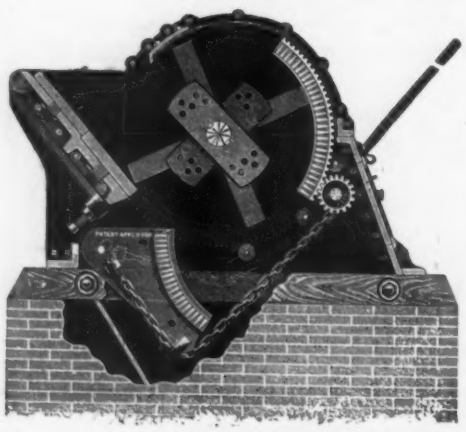
ADDRESS

Symons Brothers, Majestic Building **Milwaukee, Wis.**

WILLIAMS JUMBO CRUSHER

Will take 6 in. Limestone or Shale and reduce to 2 inch,—1½ inch,—1 inch,—¾ inch and finer.
1 No. 6 Recently Replaced 3 No. 5 Gyratories.

"MANUFACTURED AND LICENSED UNDER 87 SEPARATE AND DISTINCT PATENTS."



WITH DUMP CAGE OPEN.

Iola, Kansas, December 6th, 1910

Williams Patent Crusher & Pulverizer Co., St. Louis, Mo.

Gentlemen: Your No. 6 Jumbo Crusher recently installed by us is handling about 100 tons per hour of crushed limestone from a No. 8 Gyratory Crusher, the largest pieces of which will average six inch cubes.

The capacity of our elevator is 115 tons per hour and the machine easily overloads the elevator. We are now installing an elevator of double the CAPACITY FOR THIS CRUSHER. Your guarantee was fifty tons per hour from this machine.

Your crusher reduces all of our material to three-quarter inches and finer, and the majority to one-quarter inch.

We have been operating the machine about eight weeks and find same most satisfactory.

Yours very truly, THE IOLA PORTLAND CEMENT CO., F. L. WOODS, Supt.

MADE IN 8 SIZES—ALL PARTS ADJUSTABLE

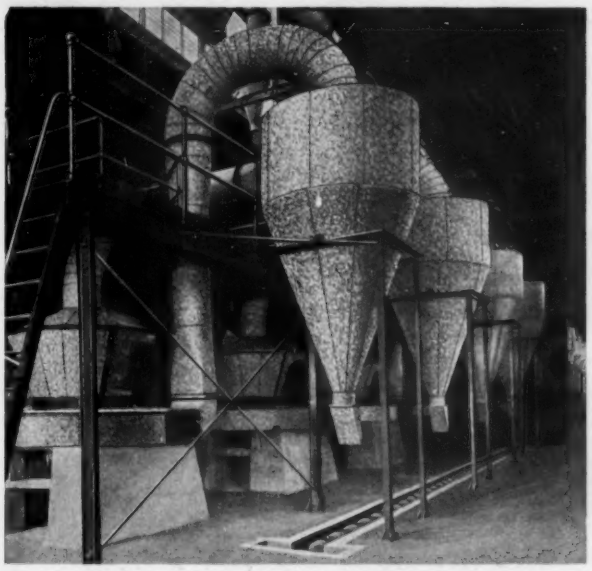
Ask Iola Portland Cement Co., Texas Portland Cement Co., Southwestern Portland Cement Company,—or us. Write for Bulletin 12.

WE ALSO MAKE LIMESTONE GRINDERS

WORKS: 2701 N. Broadway, ST. LOUIS
SAN FRANCISCO, 428 Monadnock Bl'dg.

THE WILLIAMS PATENT CRUSHER & PULVERIZER COMPANY

OLD COLONY BL'DG.———CHICAGO



"An installation of the Raymond Pulverizing Air-Separating System in a Cement Plant."

Read this Remarkable Record of the

RAYMOND PULVERIZING AIR-SEPARATING SYSTEM

in a Cement Plant

Every Cement Manufacturer in America will be interested in this record of the coal-grinding efficiency of two 5-Roller Raymond Mills in a large Cement Plant. Some time ago a certain Cement Plant discarded six new Mills of another make and installed two Raymond 5-Roller Mills to grind its coal. Here is a record of both in deadly parallel:

RECORD OF DISCARDED MILLS	RECORD OF RAYMOND 5-ROLLER MILLS	SAVINGS EFFECTED BY RAYMOND MILLS
Mills in operation 6	Mills in operation 2	Saving initial cost of 4 mills and their maintenance charges.
Fineness of coal .....85% (through—100 mesh.)	Fineness of coal .....96% (through—100 mesh).	Saving 12% in coal due to the greater fineness.
Shifts worked 2	Shifts worked 1	Doing in one shift what requires 2 by the Discarded Mills.
Hours of each shift.....12	Hours of each shift 12	Saving 1-2 the cost of operation.
Total hours per day 24	Total Hours per day 12	
Men employed 6	Men employed 2	Saving 66⅔% of labor expense (4 men each day).
Power required 320 H. P. 2 shifts, each of 160 H. P.	Power required 160 H. P. Only one shift—	Saves 1-2 the cost of power.
Hygienic condition In grinding room. Unfit for Human Beings	Hygienic condition in grinding room..... Ideal	The men now like to work in the grinding room and consider the work a snap.

"The conditions in the grinding room where the Discarded Mills were in operation, said the superintendent, were such that the men would not remain there. The atmosphere was heavily laden with dust, choking the men and rendering the place unfit for human beings." Until the Raymond System was installed it had been dangerous and a source of constant grief to the principles.

This record is only one of many we have, which proves that there is no system, mill or device of any kind for grinding coal that comes anywhere near the efficiency of the Raymond Pulverizing Air-Separating System.

The features of the Raymond System which are exclusive with it are the greater degree of fineness of the ground material and the automatic method of instantly separating the pulverized product from the mill and the conveying of it to the point desired. All this is done while the mill is in operation.

One cement manufacturer figures that he is saving 65% in grinding his coal, and he knows also that his plant is not sending his workmen to early graves, for no dust escapes from Raymond Mills to choke or poison the men who work near them.

Our proficient Engineers know a lot about the application of our system to special requirements. They have pointed out to many firms ways of annually saving immense sums of money. Your grinding problems may not be solved until you learn whether or not our system is applicable to your needs.

A letter to us today may mean, to you, a reduced cost of production, a betterment in grade of your product, a more workable material, a greater facility of handling it or some other equally important change which you will gladly welcome.

Send for our Book "I", which explains in detail what our system is and how and where it may be used.

Read this book and you may find the way to divert some items from the expense account into the dividend account.

Raymond Pulverizing Systems are designed by our Engineering Specialists, who fit them to conditions existing in your plant. They are installed with our absolute guarantee that they will do the service we claim and that you require, or the sale is not made.

RAYMOND BROS. IMPACT PULVERIZER CO.

517 Laflin Street Chicago, Ill.

We design special machinery and methods for Pulverizing, Grinding, Separating and Conveying all powdered products. We manufacture Automatic Pulverizers, Roller Mills, Vacuum Air Separators, Crushers, Special Exhaust Fans and Dust Collectors.

PLEASE CUT OUT THIS

REMINDER

To write Raymond Brothers Impact Pulverizer Company, 517 Laflin St., Chicago, for their Book "I" on Modern Methods of Pulverization and Air Separation.

Structural Tiles

IN ALL USEFUL SIZES FOR EVERY KIND OF BUILDING

Now Booking Orders for Spring Delivery

FOR DWELLINGS—These tiles combine the long needed essentials of perfect adaptability to every kind of decorative treatment, very high fire resisting value, and extreme low cost as well as economy at the job. With them a permanently sanitary home is built—this cannot be done with any other material.

COUNTRY ESTATES AND FARM BUILDINGS—Economical improvements that show up, for every dollar of the cost is obtainable only with this greatest concrete product.

PLASTERED EXTERIORS—A Perfect Plastering surface is provided in concrete tile walls for the spreading of plaster or stucco with absolute certainty of securing strong adhesion of the materials.

CONTRACTORS WHO USE OUR TILES EASILY UNDERBID COMPETITION

Chicago Structural Tile Co.

537 South Dearborn Street, - - CHICAGO, ILL.

HOTEL IMPERIAL

Broadway, 31st and 32nd Streets, NEW YORK CITY

ABSOLUTELY FIREPROOF

AEROPLANE VIEW OF THE HOTEL IMPERIAL. 1. THE HOTEL; 2, PENNSYLVANIA STATION; 3, HUDSON TUNNELS TERMINAL; 4, THIRTY-THIRD STREET ELEVATED STATION.

¶ Only one block from the New Pennsylvania station and convenient to New York Central.

¶ Across the street is the 33rd Street station of the Elevated, also the newly completed terminal of the Hudson tubes, **which connect in 20 minutes** with the following important railroads and steamship lines:

North-German Lloyd	Delaware, Lackawanna and Western
Holland-American	Lehigh Valley
Hamburg-American Line	Erie

¶ **The Imperial** is the **headquarters** for **members** of the **cement trades** and will be the **headquarters** for ROCK PRODUCTS during the coming convention.

¶ The minimum rate is $2.00 per day.

¶ It is **important that all delegates who expect to be present** during the convention should **engage** their **accommodations** at the **Imperial as early as possible.**

¶ Booklet with tariff on application to Copeland Townsend, Manager.

MAKE THIS HOTEL YOUR HEADQUARTERS DURING THE CONVENTION

IF YOU WISH A CHOICE LOCATION

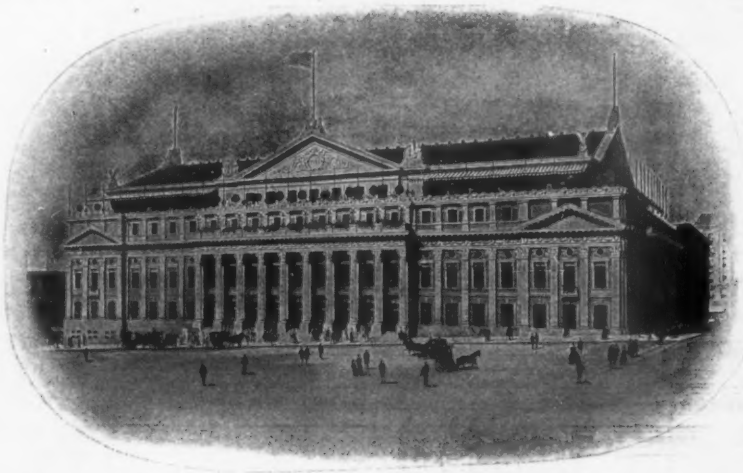
Secure Your Reservations **NOW** for Space at

THE MID-WEST CEMENT EXPOSITION

UNDER THE AUSPICES OF

The Nebraska Cement Users' Association

FEBRUARY 6, 7, 8 AND 9 1912



FEBRUARY 6, 7, 8 AND 9 1912

at The Omaha Auditorium, Omaha, Nebraska

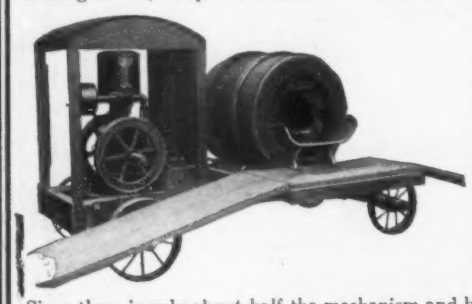
H. C. McCORD, President
Columbus, Nebraska

PETER PALMER, Secretary
Oakland, Nebraska

Have You Fully Considered the Economy of the Low Charging Feature of

THE ECLIPSE
LOW CHARGING
CONCRETE MIXER

Wheeling material direct from supply piles to mixer means no time lost in waiting for the loading of a charging elevator, no extra man to operate a loading device, no special framework to sustain it, no hoisting mechanism, and no additional power to operate it.



It produces a mixer, having as large capacity as other mixers of double the weight, that is so compact and portable that it can be readily moved to any location on the job so that most concrete can be produced with least manual labor.

Since there is only about half the mechanism and half the power required you do not have to pay for additional equipment that adds nohting in mixing capacity.

We have proved this greater economy to many of the biggest builders and contractors and we are ready to prove it to you.

Catalog No. 33 Tells About It. Better Write for It Today

The Standard Scale & Supply Co.

1345-1347 Wabash Ave., CHICAGO

NEW YORK 136 W. Broadway
PHILADELPHIA 35 South Fourth Street
PITTSBURGH 243-245 Water St.

Myrick Bldg., Springfield, Mass., where S-W Concrete Finish was used.

SHERWIN-WILLIAMS CONCRETE FINISH

is not a linseed oil paint but a specially made preparation that spreads easily over concrete surfaces filling and sealing the pores, hardening the surface and effectively preventing the absorption of moisture. Its use on concrete floors puts an end to the dangerous dust that is always a menace to health, machinery and merchandise. It wears splendidly under hard service and the colors are very attractive and durable.

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its free on request and contains color samples finished with the actual goods. It describes their uses and application. Mail a post card now while you have it in mind.

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BAY STATE BRICK and CEMENT COATING is being used with perfect satisfaction in the heaviest construction work where concrete is applied.

It's a perfect protection for brick, concrete or stucco surfaces, no moisture can get in where it is. It sticks where it's put.

The largest mills, the biggest railroads, and some of the best known Public Works Departments in the country have specified it and used it with the utmost success.

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Paint and Varnish Makers and Lead Corroders,
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WATER PROOFING

We Guarantee Absolutely, with a bond behind our guarantee that we can make Any Concrete Structure Perfectly Impervious to Moisture, Absolutely Waterproof, by Our Process.

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WATERPROOF PORTLAND CEMENT
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PATENTED THE WORLD OVER
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MITCHELL LIME

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is better and cheaper than lump lime—you save money and get a better article.

Can be thoroughly soaked in one day in place of seven.

Carries more sand, gauges with one-third less plaster, spreads further and easier than lump lime and it will not airslack.

—And we're specialists in sudden service—you can get your order on the dot.

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The wire tie is absolutely secure, quicker in operation, more uniform and cheaper than twine.

It is opened by simply untwisting, no knife can be used—no cut bags.

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HYDRATED LIME

Bulletin No. 43

KRITZER CONTINUOUS PROCESS

The Government Lime Statistics for 1910 have just been issued. According to this report the quantity of lime manufactured in 1910 was less than that produced in 1909, while the quantity of Hydrated Lime manufactured showed an increase of more than 50%. This shows the drift of the lime business. What evidence could be more convincing?

You Will Eventually Establish a Hydrating Plant Why Not Do It Now?

We can prove to you positively that by so doing,
Your sales will be increased.
Your expense of manufacture will be no more.
Your overhead expenses will be less.
Your product will always be perfect. We guarantee this absolutely.
You will have every dealer praising your product.
Every dealer will handle More Lime.
Every concrete worker can do Better Work.
Every concrete worker can do More Work in Less Time.
He will make More Money and hence will wish to use More Lime.
He can do the Same Work with Less Men.
The work will be Impervious to Moisture.
The Concrete will Work Easier and Look Better, in fact, Be Better.

The cost of installation is not heavy. Let us give you prices.

We would be pleased to give you estimates covering **your particular case,** free of all charge.

We can convince you that it has paid handsomely to erect a Hydrating Plant, not merely in one instance, but in every instance.

The Kritzer Way Is the Right Way

98 per cent of all the ideas used in Hydrating Lime are Kritzer ideas.

An Absolutely Perfect Product, Positively Assured by this Process.

A Bond Behind Every Guarantee.

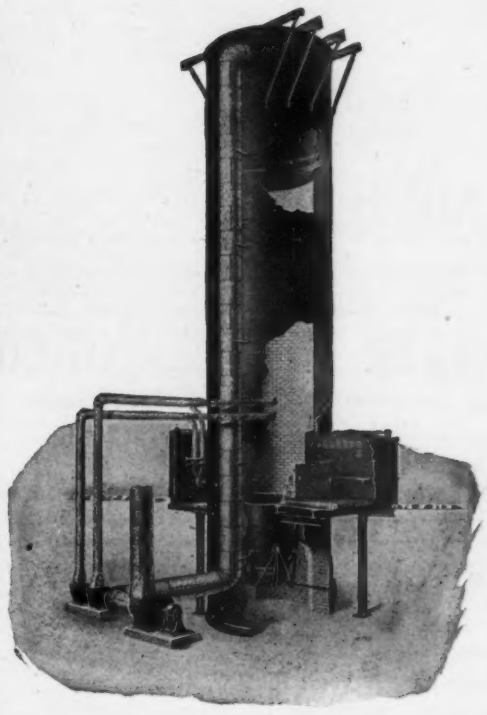
It takes several months to install a plant.

Why not take this matter up with us **Now** and get ready for business as soon as possible?

The Kritzer Company

115 Adams Street
Chicago, Illinois

You Cannot Make Good Lime
With a Poor Lime Kiln



Any high-class product can come only from high-grade, economical equipment. **And a high-class product is what the market demands today.**

If you are a lime manufacturer, a Doherty Lime Kiln will make you a better grade of lime at lower cost than any other kiln. **And the quality and low cost of your lime will give you command of your market.**

The superior grade of output, and the economy of Doherty Kilns, come from the fact that they are designed by combustion experts who know how to utilize the heat of the fuel in just the right way and to best advantage.

It will pay you to be up-to-date in your lime making methods. Our Bulletin No. 4 points the way.

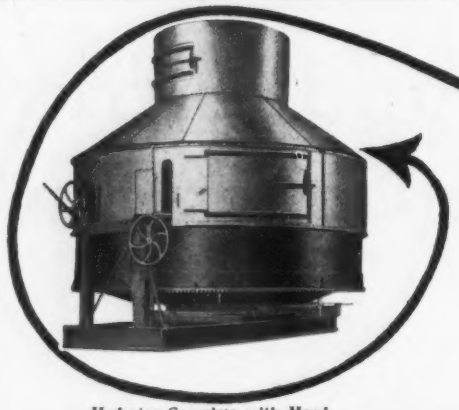
IMPROVED EQUIPMENT CO.

COMBUSTION ENGINEERS

Executive and Sales Offices, 60 Wall Street, NEW YORK

ALUMINATE PATENTS CO.

2211 Chestnut Street, PHILADELPHIA, PA.



Hydrator Complete with Hood

The CLYDE HYDRATOR

A Machine That Outgrows Its Capacity Every 2 Years. Proven by the experience of operators covering a period of 6 years. Increased sales due to thoroughness of hydration. By hydrating one "batch" at a time, each particle of lime receives the precise amount of water and number of minutes required to thoroughly hydrate that particular "batch." Hydrate from the Clyde Process, the "common sense way," is making good in every market. Lime as hot as 99.16% CaO handled as easily as magnesium. If YOUR hydrated lime business does not grow, see if your successful competitor doesn't use the Clyde Process.

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Patentee and Sole Manufacturer.

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MANUFACTURERS OF THE
Celebrated Cheshire "Finishing" Lime

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CEMENT WORKS: Austin, Minn
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TRADE MARK **DYNALITE** REGISTERED

TWO PATENTS

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DISCRIMINATING CONSUMER.
WEIGHING THE POINTS OF SUPERIORITY

Water Grade
DYNALITE "Weigh" a-head

Safer and Better Than Dynamite. Does Not Explode by Overheating. No Illness.

Water Grade—No Thawing.

Manufactured by **The American Dynalite Co.**

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IS WHAT YOU WANT

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Independent Powder Co.
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EXPERIENCE of 109 YEARS

Is at your service to give you practical information and advice regarding the selection and use of explosives for every blasting need.

Give us the data about that unsatisfactory blasting experience of yesterday and we will gladly assist you to overcome the trouble.

Let us help you out of your difficulty.
Address Dept. No. 115.

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ESTABLISHED 1802
WILMINGTON, DELAWARE
Pioneer Powder Makers of America

AETNA

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Knoxville, Tenn. — Chattanooga, Tenn. — Iron Mountain, Mich. — Xenia, Ohio

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ROCK, CLAY
COAL, ETC.

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We have equipped the largest plants in existence and our dryers are operating in all parts of the world. Write for list of installations and catalogue S. C.

American Process Company
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MEDUSA PRODUCTS

WHITE PORTLAND CEMENT

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WATERPROOFING
(Patented April 23, 1907.)

Makes Concrete impervious to water and gives absolutely permanent results. Not a wash or an experiment.

WATERPROOFED PORTLAND CEMENTS

Ordinary Gray and White Portland waterproofed with our famous Waterproofing and ready for use.

Obtain illustrated Circulars, Samples and Prices.

Sandusky Portland Cement Co., :: Sandusky, Ohio

THE CUMMER DRYERS

For Mechanically Drying Everything. The F. D. Cummer & Son Co., Cleveland, O.

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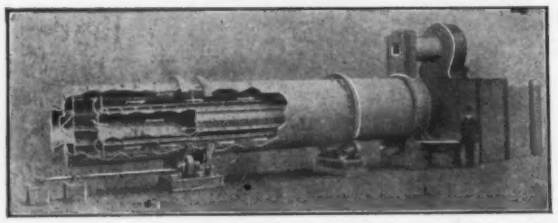
These are the figures from a sand and stone company operating a

RUGGLES-COLES DOUBLE SHELL DRYER



This firm successfully dried 8 to 10 tons of wet sand per hour and 15 tons per hour of perfectly drained sand. After running continually 10 hours per day for two years, with the exception of about 3 weeks when the plant was being repaired, the owners report the dryer to be practically as good as new—an example of the Ruggles-Coles Dryer service.

Ruggles-Coles Dryers are also built to dry cement rock, clay, gypsum, marl, chalk, coal, organic materials, etc., etc. Over 14 year's experience makes us capable of drying anything.

Send us a sample of your material and let our engineers figure on your requirements

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FOR SAND, CLAY, ROCK PRODUCTS AND OTHER GRANULAR MATERIALS.

Excellent Results Moderate in Cost and Expense of Operation.

In sending for prices and printed matter describe your material fully, giving its percentage of moisture, required hourly capacity, etc.

S. E. WORRELL
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(First Manufacturer of Rotary Fire Drying Machines in the U. S.)

Want to Sell Your Old Machinery? Use Our Classified Section.
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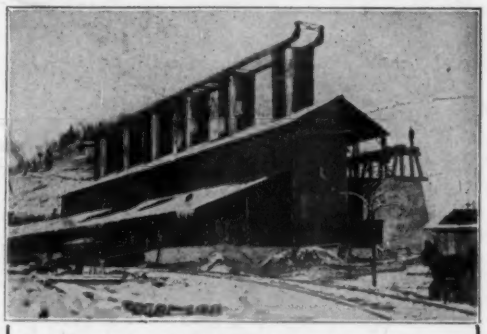

Lime Kilns and Plant of Blair Limestone Co., Canoe Creek, Pa.

Designed by

Henry S. Spackman Engineering Company

42 N. 16th Street Philadelphia, Pa.

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ROCK PRODUCTS

ESTABLISHED IN LOUISVILLE, KY., 1902.
DEVOTED TO CONCRETE AND MANUFACTURED BUILDING MATERIALS.

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Publication day, 22nd of each month.

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Communications on subjects of interest to any branch of the industry are solicited and will be paid for if available.
Every reader is invited to make the office of Rock Products his headquarters while in Chicago.
Editorial and advertising copy should reach this office at least five days preceding publication date.

TERMS OF ANNUAL SUBSCRIPTION.
In the United States and Possessions and Mexico.....$1.00
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Subscriptions are payable in advance, and in default of written orders to the contrary, are continued at our option.
Advertising rates furnished on application.

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There is much food for thought in the government statistics printed in this issue of ROCK PRODUCTS. They are compiled with infinite labor and at great cost for the benefit of the various industries. The Department of the Interior, U. S. Government Survey, is to be congratulated upon the thorough and efficient manner in which these statistics are handled and which are of such incalculable benefit to the building material industry.

Now that the sand and gravel interests have organized, it is up to the crushed rock operators to do the same. The production of sand and gravel is no more a local proposition than is that of crushed rock. There is just as much need of an organization among the crusher operators as among any other branch of the building material industry. A good strong organization would materially strengthen their position in the commercial world.

The time is not far distant when every wide-awake business man will be affiliated with the organization which has the interests of his business at heart. Combinations of brains and capital are necessary to work out the problems confronting the various fields of human endeavor. They are the natural evolution of our times. Without them we will stand still. Progress in any industry is measured by the amount of co-operation in that industry.

As ROCK PRODUCTS goes to press it is as yet undecided as to whether the National Association of Cement Users will hold its convention in Kansas City during the Cement Show or not. However, there is a strong probability that it will do so. It is to be hoped that the cement users of this country will rally to the support of this organization which has done so much for the industry. The officers of this association have worked zealously for its success and they deserve the co-operation of all the allied cement interests.

Advocates of the Sherman Anti-Trust law, who are clamoring for its strict enforcement ought to be well pleased with the cement situation. This is the best example of a gigantic industry suffering from lack of co-operation. Lumber and steel, its two greatest competitors, now under fire, have both made money by co-operation but the cement industry today is floundering along in a hopeless manner without any possible chance to make any money despite the fact that the increase of consumption in Portland cement has been greater than that of either lumber or steel.

Let co-operation and harmony be your watchword for the year 1912, for without these two very essential factors the business fabric can never be very closely woven and will always have holes large enough for all the profits to run through. Co-operation does not mean the elimination of competition or a combination in restraint of trade, it merely means the application of sane methods of doing business.

As ROCK PRODUCTS is going to press preparations are being made all over the country to celebrate the Christmas holidays. It is our pleasure to extend the greetings of the season and wish every man in the industry, be he big or small, a very merry Christmas and a happy New Year. While the past year has not come up to expectations let us all bend our utmost energies toward making the year 1912 a greater one. The fact that the outlook is not very promising ought to be an additional incentive to make us work harder as the fruits of success will be all the sweeter if accomplished under adverse circumstances.

The coming month will be one fraught with interest to the building material industry. The lime manufacturers and the building material retailers will both hold their conventions, co-incident with the New York Cement Show. This will bring together more people interested in the building material business at one time than were possibly ever gathered together before. We think it a splendid idea to have all of these conventions at one time as there are many men who are interested in all three lines and who do not want to miss any of them and who, at the same time, do not wish to remain away from their business any longer than necessary. There is every reason to believe that the attendance will be a record breaking one and it is to be hoped that the opportunity for co-operation among these allied industries will be taken advantage of.

The National Sand & Gravel Producers Association was formed at the recent meeting held at the Auditorium Hotel in Chicago, on December 15 and 16. Although many were prevented from coming, owing to various reasons, the attendance was very satisfactory and the new born association was launched with every reason to hope that it will accomplish the very laudable objects for which it was organized. The sand and gravel industry has grown almost as fast as the cement industry and millions of dollars are invested in plants all over the country. With the organizing of the association the work has just commenced and it behooves every sand and gravel operator in this country to join the movement and help along the good work. By this time next year there should be a membership of not less than 300 of the most enterprising sand and gravel producers in this country. At the coming meeting of the National Builders Supply Association in New York, a delegation will be on hand from the Sand & Gravel Association to enroll as members any producer who is present.

There seems to be somewhat of a change of heart recently, a sort of a revulsion of feeling, regarding the dissolving of the trusts and it will not be long before the sentiment is just as strongly in favor of allowing the gigantic combinations of capital to continue unmolested as there is today to see them torn apart. The public is beginning to learn that there is no such thing as a good trust and a bad trust and that the dissolution of these companies will not make commodities any cheaper or raise salaries. A great many of the so called trusts have materially decreased the cost of production and the cost of selling by combining forces. A shoe manufacturer made millions by selling at a margin of one-half cent profit per pair of shoes. This could not have been possible without a vast organization and tremendous capital. Manufacturers of any commodity who cannot make a reasonable profit cannot exist for long. The main trouble with our country is the increased standard of living instead of the increased cost. The demagogues and politicians and yellow newspapers have so distorted the facts in a great many instances that they have gradually made the public believe in their silly stories. The disruption of the financial and commercial world has not resulted in the promised reduction in prices and a long suffering public is beginning to wake up.

EDITORIAL CHAT

O. S. Brown, of Cook & Brown, Oshkosh, Wis., was in Chicago during the week.

Joseph Hoch, of the Wisconsin Lime & Cement Company, Chicago, is back from his European trip.

F. B. Farrington, formerly with the United States Gypsum Company, has accepted the position of manager for F. D. Crowe, of Portland, Ore.

"Lou" Thayer passed through Chicago Friday on his way back to Minneapolis from Toronto, where he sold the Sun Portland Cement Company and the Construction & Paving Company complete Peerless equipments.

Among the new live wire members of the Dallas, Tex., chamber of commerce are S. Von Phul, manager of the Acme Cement Plaster Company, the F. J. McLean Gravel Company and L. A. Painter of the U. S. Gypsum Company.

Monks and Johnson, architects and engineers, 7 Water street, Boston, have associated themselves with Henry F. Keyes, architect, 161 Devonshire street, Boston, for the preparation of plans and specifications for certain large industrial developments.

The National Rivers and Harbors Congress held its eighth convention at Washington, December 5-8, with more than 2,000 delegates in attendance. The water route agitators were in full force, and the big politicians, from the President down, are taking notice these days to what the voice of the business people of the country is demanding. It is notorious fact that in this essentially commercial country and in this fundamentally representative country the real business interests have gone for a long time without representation or even consideration. The recent convention at Washington was strictly business, non-partisan and non-sectarian in character, and that is the kind that makes Congress sit up and take notice. Railroad obstruction to waterway improvement and water-borne commerce is narrow-minded and absurd. The freight traffic of every railroad will be made more profitable as soon as the low-rate commodities are put afloat—the expansion of business resultant from greater carrying facilities will give high-rate tariffs to the railroads beyond present capacity, and thereby increase railroad earnings. But this kind of prosperity usually has to be forced down the throat like good medicine for the sick man. At any rate, those water routes are sure to come because the great common people of the country to a man believe in the proposition with a firm conviction.

Many concrete workers, especially in the West, will remember the indefatigable N. J. Morehouse, one of the most popular concrete machinery salesmen in the business. He is now in the real estate buisness in Seattle, Wash., and prospering according to his just deserts. ROCK PRODUCTS joins with his friends in wishing him continued success.

Walter B. Snow announces the recent addition to his staff of Sidney G. Koon, M.M.E., for four years editor of "International Marine Engineering," and later metallurgist, Jones & Laughlin Steel Co., and also the addition some time since of John S. Nicholl, B.S., lately with the New York Edison Company, and formerly acting manager for F. W. Thorne, importer American machinery, Yokohoma, Japan. Both are members of the American Society of Mechanical Engineers.

WHERE TO STOP IN NEW YORK.

Attention of building material men is called to the fact that one of the most desirable hotels as a temporary home in New York during the New York Cement Show will be the Hotel Imperial, on Broadway extending from Thirty-first to Thirty-second street. ROCK PRODUCTS will have its headquarters at this hotel and it is probable that a very large number of visitors also will be registered there. The location is ideal and, speaking from experience, ROCK PRODUCTS has no hesitancy in saying that visitors and exhibitors cannot do better than engage accommodations at this hotel in advance. The Hotel Imperial is conducted under the most able management. Robert Stafford is the proprietor and Copeland Townsend is the manager. Pennsylvania station is only a short distance away and just a little farther away are the Twenty-third street ferries. The Sixth Avenue elevated station is across the street, as are also the Hudson river tubes. The Broadway cars pass the doors and it is one of the most conveniently located of all the New York hotels.

This hotel has ample accommodations and there are now eight hundred rooms, six hundred of them being supplied with private baths, and every room is equipped with telephone service. The cuisine is celebrated for its excellence.

The foyer of the hotel is decorated in the style of Louis XIV and recent improvements have added spaciousness to this attractive meeting place for guests and their friends. The marble staircase here is a work of art, enhancing by its grace and dignity the attractiveness of the handsome foyer.

The Louis XIV grand salon is on the ground floor. Every detail is in perfect accord with the graceful forms of decoration for which the period of the Sixteenth Louis is renowned.

The palm gardens constitute one of New York's most delightful spots for a quiet luncheon or dinner, and the orchestra here is deservedly noted.

A bureau of information for travelers and tourists is one of the important features of the Hotel Imperial.

If prospective guests will notify the hotel management, they will have a representative meet you at your steamer or train, who will arrange for the handling of your baggage.

There will be no carrying charges on trunks to and from the new Pennsylvania station (provided original baggage checks are delivered to the porter at the hotel).

This service was designed especially to meet the requirements of tourist parties or of ladies traveling alone.

If you want to see the principal places of interest in New York, you will save time and money also by applying to their bureau of information.

If you wish, they will send a courier with you. The convenience and importance of this service cannot be overestimated, and all patrons are requested to make free use of it.

The Imperial provides for the convenience of its guests a fully equipped motor taxicab service.

THE BUILDING MATERIAL MAN'S DREAM.

DEATH OF S. W. SHOOP.

S. W. Shoop, a designer and inventor of the Shoop Lime Kiln, and senior member of the firm of S. W. Shoop & Co., Altoona, Pa., died at his home in Lancaster, Pa., December 3, aged 55 years. The fraternity of lime men, and all those who had either an acquaintance or business connection with Mr. Shoop, regretfully hear of his demise. He was a man well thought of in the trade, and his influence will be missed.

It is announced that the business will be continued under the same name by the junior member of the firm, Charles Z. Pote, with offices in the Central Trust Bldg., Altoona, Pa.

History Makers of the Building Material Industry

At a banquet of the Indiana Society in Chicago something less than a century ago George Ade said: "Some of the best men in every walk of life came from Indiana—the better they are the quicker they come."

The man this story is about came from Indiana.

Like most other men who have accomplished something in life the President of the American Cement Plaster Company, A. Henley, Senator Henley, if you please, has little to say about himself. "There has been little that is strange about my life," he says, "the same, perhaps, as many other farmer boys."

Down in good old Henry County, Ind., he first saw the light of day and his early life was much like that of other farmer boys. He could pitch hay with the rest of them, follow a furrow or steal away to the swimming hole. But it happened that he was not naturally a farmer. The hum of machinery had more attraction for him than the barn yard choruses and the rattle of the harvester. So he drifted westward and Marshalltown, Iowa, looked so good to him that he settled there and went to work in a machine shop.

It happened about this time that the barb wire industry was just in its infancy and Mr. Henley was one of those who saw the great future of that industry. Everybody commenced to buy barb wire and surround farms with it because none could crawl through it or climb over it with impunity. The concern young Henley was connected with was making barb wire and he displayed such an aptitude for the business that he was solicited to become a member of the firm. While he had a deep faith in the company and the business it was conducting he concluded that he would go to Kansas and establish a business of his own. It was in the year 1878 that he went to Lawrence, Kansas, and with only four small hand machines commenced the manufacture of barb wire. The business grew remarkably from the start and in a few years he had a large business. This was made possible not only by the natural growth of the west but by the indomitable will and great energy of the man at the head of the establishment. These characteristics have remained with him during his entire business career.

Then came along the inevitable troubles that lend spice to business. Certain parties claimed to own the basic patents for the manufacture of barb wire and sought to collect large royalties from Mr. Henley's company. "We paid them part of the time," he says, "and part of the time not—mostly not." The company became known as a "moonshining" company, and it was not long before the word "moonshine" became so well known in connection with the company's product that it adopted the word as a trade mark, and "Moonshine barb wire" was famous throughout the west.

The business continued to grow and being firmly convinced that there was nothing serious the matter with Kansas the company established mills at other cities until 1899, when along came the barb wire trust and bought them out.

It is quite a leap from barb wire to gypsum, but Mr. Henley made it easily at one bound. At that time the gypsum industry was in swaddling clothes and showing signs of rapid growth. Mr. Henley and his associates secured a half interest in a small mill at Mulvane, Kansas, and started in to make history in the plaster world. Of the history of the American Cement Plaster Company from that time the trade is more or less familiar. During the years when the building public had to be educated in the use of hard wall plaster, Mr. Henley was at the fore in the origination of methods and in the giving of inspiration to his forces. He is a man of great personal magnetism and easily gives enthusiasm to those about him in any subject under discussion. And it may be said candidly and truthfully that much of his marvelous success is due to his power of creating and maintaining in those about him a sense of abiding loyalty. So that today any one in his organization swears by American Cement Plaster products and preaches them in the highways and byways of the country.

In the course of time the company either acquired or built other mills in various strategic parts of the country till now there are seven mills in operation with a capacity of 2,000 tons of plaster, 12,000 feet of fire proof gypsum blocks and 100,000 feet of wall board daily.

Mr. Henley has always been a public spirited man, and while he has never been of a disposition

to mix much in politics he has served his fellow citizens in Kansas eight years in the Kansas legislature. He has served four years in the house and four in the senate, and it may be justly said of him that his record is one to be proud of. He always advocated measures and policies that were for the public good and his vote on every proposition will bear the full light of day. What an industry needs to give it tone, regardless of the product or its excellence, is the high integrity and honor of the leading men engaged in it. In this respect the gypsum industry is fortunate. It is men like Mr. Henley who are making its primal history and laying the foundation of its great future.

D. N. Dilla, of San Francisco, Cal., says: "I get much benefit from your magazine, as it contains many mental nourishing ideas."

John T. Evans has severed his connection with the Atlas Portland Cement Company and expects to join forces with a prominent Chicago dealer in building material. Mr. Evans has been identified with the cement trade for a number of years and is well known in Chicago and the West.

There is no prettier holiday souvenir this season than that of the Cleveland Material Company, of Cleveland, O. It consists of a seal leather folding pocketbook with detachable loose-leaf memorandum. Mr. W. P. Hurst, the presiding genius of this concern, hereby expresses his good judgment and good taste in thus remembering the patrons of his supply house. He is an energetic and persistent salesman of building materials, the like of which has few equals, and his success is always well earned.

W. H. FORD IS LAID UP.

Just about the time all well-behaved Americans were too full of Thanksgiving turkey to think of anything else the head front of cement salesmanship in Canada, William H. Ford, suffered a painful accident by breaking his leg at a dinner party in Montreal. Now, he is a Southerner, born in the exclusive and dignified city of Charleston, an apostate American as it were, but quite as popular still on this side of the border as in the actual field of his activities. Laid up in the General Hospital he declares he likes the place, for he has been well used there, all except the fish plates and carriage bolts that were necessary to patch up the broken member. Several engineer friends assembled at the hospital and cemented the broken pieces of leg together, secured a good initial set and figured that the patch would carry 250 pounds in compression in eight days' time, and a tensile strain of 500 pounds by Christmas, in case of a severe pull about that time. As he is still a bachelor this is deemed sufficient treatment for the present, and provided he promises not to stalk any deer in the Otrento preserves, he may go home to Charleston for the holidays. Those who know him best aver that he has never stopped in one place so long in his life before the present incident, and there will certainly be some rapid distance covered to make up for lost time as soon as he gets out.

NATIONAL INDUSTRIAL LEAGUE.

The proceedings of the National Industrial Traffic League, whose convention was held at the Congress Hotel in Chicago, November 16, are now available for distribution.

One of the matters of special interest to the League is a bill now before Congress to promote the safety of employees and travelers on railroads by requiring common carriers to establish and maintain a safe and sufficient clearance between structures located on their roadway and cars passing over their lines. The building material dealers are interested in this bill, especially those who maintain larger trucks and sometimes meet with difficulty in passing under viaducts in the delivery of their goods. Copies of these proceedings may be had by addressing the secretary, W. D. Harlbut, 28 East Jackson Boulevard, Chicago.

RESOURCES OF OKLAHOMA.

The Oklahoma Geological Survey is sending out its preliminary report on the road materials and road conditions of Oklahoma, by L. C. Snider. This covers the materials that are available for road building, like sand and sandstone, clays and clay-production, gravel, asphalt, etc. Three kinds of gravel occur in Oklahoma; granite, quartz and limestone gravels. Copies of this report may be secured by addressing the Survey at Norman, Okla.

W. T. Thompson, formerly general manager of the Iroquois Iron Works, Buffalo, N. Y., has been elected vice-president and general manager of the Monarch Road Roller Company and is located at the factory, Groton, Tompkins county, N. Y. Mr. Thompson will have active charge of the management of the company.

WM. B. BARR, WM. WOLFF SMITH, E. H. PULLMAN
Contributing Editors
722-723 Southern Building, - Washington, D. C.

OUR WASHINGTON BUREAU.

The National Government is in such close contact with every line of business that a reliable source of information located at the Capital is everywhere regarded as invaluable. ROCK PRODUCTS maintains at Washington a fully equipped and highly efficient news and information bureau located in the heart of the business and financial district and convenient to the government departments. Our patrons who may wish to be privately informed will find our Washington Bureau prepared to serve them promptly and efficiently by mail or wire. Charges are consistent with the character of the service.

The field covered includes: Congress, the U. S. Supreme Court, Court of Commerce and other courts; the Interstate Commerce Commission and other commissions, and all Government Departments with their various bureaus and branches.

Our patrons are invited to make our bureau their headquarters while in Washington and avail themselves of our facilities.

Inquiries may be addressed to ROCK PRODUCTS, or to its Washington Bureau, Rooms 722-723 Southern Building, Washington, D. C.

Uncle Sam to Set the Pace.

The House Committee on Public Buildings and Grounds, despite opposition of leaders Underwood and Fitzgerald, of the Ways and Means and Appropriations committees, on the grounds of economy, has decided to bring in this session of Congress a public buildings bill carrying in the aggregate $25,000,000. The following public buildings bills have been introduced:

By Rep. Davis, of W. Va.: Public building at Martinsville, W. Va.

By Rep. Henry, of Conn.: Public building at Manchester, Conn.

By Rep. Stephens, of Neb.: Public buildings at following towns in Nebraska: Wayne, Schuyler, Hartington, Albion and Tekamah.

By Senator Briggs, of N. J.: For public building at Morristown, N. J.

By Senator Sutherland, of Utah: For public building at St. George, Utah.

By Rep. Godwin, of N. C.: For custom house at Wilmington, N. C.

By Rep. Browning, of N. J.: For public building at Salem, N. J.

By Rep. Anderson, of Ohio: For public building at Bucyrus, Ohio.

By Rep. Borland, of Mo.: For the enlargement of the federal building at Kansas City, Mo.

By Rep. Bartholdt, of Mo.: For a subtreasury building at St. Louis.

Rep. Sparkman, of Florida, has introduced a bill for a federal building at Lakeland, Fla.

By Rep. Hughes, of Ga.: Public building at Fitzgerald, Ga.

By Rep. Martin, of Colo.: Public building at Durango, Colo.

By Rep. Prince, of Ill.: Public building at Geneseo, Ill.

By Rep. Rucker, of Colo.: Public building at Fort Morgan, Colo.

By Rep. Robinson, of Ark.: For the improvement, extension and repair of the army and navy hospital at Hot Springs, Ark.

Rep. Ayres, of N. Y., has introduced a bill for a $100,000 monument to Peletiah Webster in Washington, D. C.

Rep. Littlepage, of W. Va., has introduced a bill for the construction of a federal building at Logan, W. Va.

By Rep. Legare, of S. C.: For an addition to the federal building at Charleston, S. C.

By Rep. Anderson, of Ohio: For public building at Sandusky, Ohio.

By Rep. Malby, of N. Y.: For a keepers' house for the lighthouse at Crown Point, N. Y.

Rep. Guernsey, of Me., has introduced a bill for a monument to Jeremiah O'Brien.

Rep. Lamb, of Va., has introduced a bill to erect a shaft at the grave of George Wythe.

By Rep. Denver, of Ohio: For public buildings at Hillsboro, Wilmington and Lebanon, Ohio.

By Rep. Needham, of Cal.: For public building at Modesto, Cal.

Rep. Robinson, of Arkansas, has introduced a bill for a federal building at Fordyce, Ark., and Rep. Cline, of Ind., has introduced a bill for a building at Kendallville, Ind.

By Senator Crawford, of S. D.: Public building at Madison, S. D.

By Senator Bailey, of Texas: Public building at Denton, Texas.

By Rep. Woods, of Iowa: Public building at Carroll, Iowa.

By Rep. Henry, of Conn.: Public building at Rockville, Conn.

By Rep. Bates, of Pa.: Public building at Union City, Pa.

By Rep. De Forest, of N. Y.: For buildings at Watervliet and Cohoes, N. Y.

By Rep. Padgett, of Tenn.: Public building at Pulaski, Tenn.

By Rep. Kinkaid of Nebraska—For a public building at Chadron, Neb.; at Alliance, Neb.; at Lexington, Neb.; at Broken Bow, Neb.

By Rep. Stedman of North Carolina—A public building at Mount Airy, N. C.; at Chapel Hill, N. C.; at Burlington, N. C.

By Rep. Allen—For a public Weather Bureau Observatory at Cincinnati, Ohio.

By Rep. Griest of Pennsylvania—For a public building at Columbia, Pa.

By Rep. Heflin of Alabama—Appropriating $25,000 for a monument on the battle grounds at Horse Shoe, Tallapoosa River, Ala.

By Rep. Helgeson—Public building at Mandan, N. D., and at Williston, N. D.

Senator Townsend, of Mich, has introduced a bill providing for the regulation, identification, and registration of automobiles engaged in interstate commerce.

Senator Heyburn, of Idaho, introduced a bill to repeal the Canadian reciprocity act.

Rep. Heflin, of Ala., has introduced a bill appropriating $500,000 for demonstration work on public roads in the United States.

By Senator Bourne of Oregon—For public building at Portland, Ore.

By Rep. Switzer of Ohio—Public building at Gallipolis, Ohio.

By Rep. Burke of Pa—Public building at Pittsburgh, Pa.

The Secretary of Commerce and Labor has sent to Congress a request for an appropriation of $150,000 for a laboratory for the Bureau of Standards at Washington, D. C.

Cement Testing Laboratories.

Preparations are being made in the cement testing laboratories of the Bureau of Standards, at Washington, D. C., by which these laboratories will be the finest equipped of their kind of any in the world. New apparatus is being installed just as fast as possible with the present appropriations for the purpose.

There are at present five men working in the laboratories at Washington. Their work is now mostly routine and consists of testing materials for the Supervising Architect of the Treasury, for the War Department and the Navy Department.

Three other laboratories in the United States are under this same bureau. They are located at Northampton, Pa., Charleston, S. C. and Pittsburg, Pa.

At the laboratories at Charleston, there are twenty men now working. They are testing the cement being sent to Panama at the rate of between 30 and 40 carloads a day. There are at the present time 40 men employed by the government in these cement testing laboratories.

Three Million Yards of Concrete.

Over 3,000,000 cubic yards of concrete have been laid in the construction of the three sets of locks for the Panama Canal. This is approximately three-quarters of the concrete required for this work, which is estimated at 4,199,400 cubic yards. The exact percentage, as well as the percentages of completion at each set of locks, is given elsewhere in this issue, under the heading, "Concrete Work in the Locks." The figures do not include the spillways. That at Miraflores has not been begun. With its concrete dam it will require about 70,000 cubic yards.

At Gatun Locks the center and side walls of the upper and middle locks are practically finished. In the work on the lower chambers practically 66 per cent of the total amount of concrete is in place. No concrete has been laid for the lower approach or wing walls. Of the upper guide wall, 795 feet nearest the locks have been completed, leaving the remaining 705 feet about 24 per cent completed. The upper wing walls are approximately 95 per cent completed.

For the single lift of Pedro Miguel Locks the portions of the walls which form the actual chamber are practically completed. Of the lower approach wall 950 feet have been completed, leaving

250 feet on which nothing has been done. The wing walls, except the southwest, are practically untouched, and building the upper approach wall has just begun. Excavation for its foundation is finished, with the exception of the "mucking," or cleaning off the soil adhering to the rock. The wall will extend 1,185 feet from the upper guard gates. The guard gates afford a hypothetical demarcation of center and approach walls, which are in reality a continuous monolith.

At Miraflores the centers and side walls of the upper locks are about completed. No concrete has been laid for the upper approach or wing walls, and the laying of concrete for the lower chambers has just begun, with the placing of some foundation in the east chamber.

Complaint Filed.

The following complaint has been placed with the Interstate Commerce Commission: Waukesha Lime and Stone Co., of Waukesha, Wis., vs. Chicago, Milwaukee & St. Paul Railway Co. and Chicago & Northwestern Railway Co.

Discrimination is charged by complainant on transportation of sand, lime, gravel and other commodities to Chicago and intermediate points. Complainants claim they have endeavored to obtain fair rates but have been unable to obtain same.

Complainants pray that defendants may be required to answer charges and that they be made to desist from trying to regulate trade. Also, that they be made to establish a rate of 1¾ cents per hundredweight on sand and gravel, and 2 cents per hundredweight on pulverized, crushed, rubble, and broken stone, and 4½ cents per hundredweight on bulk lime.

Contract has been awarded to Marcus E. Getter, of Mitchell, Neb., for enlarging parts of lateral 24, North Platte irrigation project, Nebraska-Wyoming. The total yardage involved is 14,000, and the estimated cost of the work is $1,412.74. The work is to be completed by March 31, 1912.

Filed with Interstate Commerce Commission, Washington.

4569—The U. S. Portland Cement Co., of Yocemento, Kan., vs. Union Pacific Railway Co. and Chicago, Burlington & Quincy Railroad Co. and Northern Pacific Railway Co.

Complainant claims that defendants are charging an arbitrary rate of 3 cents per hundred on shipments of cement moving from Yocemento, Kan., to points in Montana, which is unreasonable and a discrimination against the U. S. Portland Cement Co. as compared with mileage from their competitors; that the above named defendants charged a rate of 50 cents per hundred pounds while at the time shipments moved their competitors enjoyed a rate of 45 cents per hundred pounds.

Complainant prays that defendants may be severally required to answer charges and that an order be made commanding said defendants to cease violation of the act to regulate commerce and also to pay complainant for unlawful charges $380.00 and such other sum as, in view of the evidence to be adduced herein, the commission may consider the complainant entitled to, and such other orders as seem wise to the commission.

Patents Issued.

Apparatus for the distribution of concrete or the like, by F. E. Walters.

Manufacture of reinforced concrete beams, A. Ghira.

Reinforced metal flanged concrete pipe, J. Hickson.

Reinforced concrete railway tie, J. F. A. Ault.

Concrete structure, R. Anderson.

Waive Duty on Cement.

In a report to the State Department from Vladivostok, Russia, Consul Newhard says that the Novorosisk Exchange Committee has addressed a petition to all exchange committees requesting them to support their petition before the Department of Trade and Industry to temporarily waive the duty on foreign cement. The reason is that the Russian Cement Products Trading Association has secured the entire trade in cement and has raised the price 30 per cent. There is only one cement factory in Vladivostok district and its output has been sold to the Amur Railway and to the Chinese Eastern Railway.

The Future of Alaska.

Gifford Pinchot, former national forester, in an address before the Society of American Foresters at his home in Washington recently said: "Alaska in the future will be of more use to the United States as an agricultural center than as a mining country. When the grab-bag policy gives way," he said, "Alaska will come into its own and will develop into a region where the sturdiest Americans will dwell and rear their families. Up until recently the armchair mushers and parlor pioneers have done nothing but take away the natural resources of Alaska."

In the course of his talk Mr. Pinchot said that in his opinion Alaska would rival California, once regarded for its gold deposits. The uproar over lack of development, he said, was due to those who gain by prospectors' toil, not the real workers.

To Extend the Work.

Representative Palmer, of Pennsylvania, has introduced a bill extending the work of the Bureau of Mines to the investigation of the methods of mining and quarrying in cement rock, granite, slate and other quarries, especially in relation to the safety of miners and other operatives, and the appliances best adapted to prevent accidents, the improvement of conditions under which mining and quarrying are carried on, the treatment of ores and other minerals, the use of explosives and electricity, the prevention of accidents, and other investigations pertinent to these industries, and to make public the same.

Principal Achievements, Office of Public Roads, During 1911.

Fifty-two object-lesson roads built during the year 1911, illustrating twelve different types of construction; total cost to localities, $120,000; total cost to Office Public Roads, $40,000.

One hundred eighty-three special assignments to give expert advice in thirty states.

Model systems in fourteen counties and eight states.

Seven hundred twenty-three lectures in thirty-five states to about 200,000 people.

Tested 685 samples of materials from forty-two states, including 324 of bituminous material.

Road mileage and cost investigation for 1909 completed: 2,210,857 miles, of which 187,910 miles were improved, or 8.49 per cent; increase in five years from 1904-9, 34,379 miles, or 1.35 per cent; total estimated expenditure 1911, $142,000,000.

Road improvement trains: Pennsylvania Railroad in Pennsylvania, 3 months, 65,000 people; Southern Railway, 6 months; Nashville, Chattanooga & St. Louis, 6 weeks; Atlantic Coast Line, 3 months (1911) now in progress.

Oiled mixed concrete: Experiments conducted by the office have proved thot this method of waterproofing is a success.

PAINT AND VARNISH.

How Knowledge of Human Nature Helped One Dealer in His Sale of Goods.

Did you ever hear of a man buying an expensive automobile just because his neighbor had one? You know what prompted him to buy it. He wanted to put on the same front his neighbor had.

The same trait of human nature holds in a good many other things. In a certain western town on one of the residence streets there was a row of fifteen houses, every one of which was sadly in need of paint. They were weather beaten and down at the heels generally. Year after year passed and still they grew to look worse.

In the town was a live building supply dealer who carried a good stock of house paints. He got the idea from his trade paper about carrying a line of paints and varnishes, just as you may be getting the hint from this publication.

Wandering along the street one day he noticed this row of houses that looked like the ruins of Ninevah for want of paint, and a thought struck him. That is the way we sometimes get bright ideas, by just wandering around and keeping our eyes open.

The dealer went to the house in the middle of the block and asked for the owner, who happened to be at home.

"I want to make you a proposition," the dealer said to the man. "If you will permit me I will give you, without a cent's cost to you, all the paint necessary to paint your house if you will do the work."

The owner accepted the proposition and later the paint was delivered. The dealer exacted the promise, of course, that the owner would not tell any of his neighbors about the gift. "It will be a matter of satisfaction to you," he said, "to let them think that you are more enterprising than they are."

In course of time the house was painted and the effect was marvelous to behold. Like a new house it stood among its neighbors as conspicuous as a fairy in a minstrel show.

Then the owners of the other houses noticed the effect. They saw how miserably poor and bad the newly painted house made theirs look. First one went to the dealer and ordered paint for his house, then another and another. In the course of that season every one of the fifteen houses was painted and the dealer sold the material for every job and at the regular price for his goods.

Now he gave away the paint for the first house, but he lost nothing. He made all the business that followed, and the campaign he laid out by giving away the material for the first house was all based on his knowledge of that phase of human nature that compels men to follow the example of their neighbors. He knew that men are like sheep in many respects and when one starts the others will follow.

Now it is taken for granted that what ROCK PRODUCTS had to say last month on the desirability of dealers carrying stocks of paints and varnishes as staples was read by every dealer. The argument urged then was that paint and varnish are just as legitimate lines in the building supply house as any other material that enters into the construction of a building. Yet many dealers, while carrying in stock every other material for the making of a building, have not, for one reason or another, carried the material in stock that gives to the building its finishing touch. They "almost" have all the materials for a house. The addition of paint and varnish to their stock would give them ALL the materials for a house.

That the effort of this publication to extend the paint business and make more money both for the dealer and the manufacturer is appreciated is shown by the following letter from the Sherwin-Williams Company:

"In looking over your issue of November 22nd we were much interested in the article appearing on page 23 entitled "Money in Paint and Varnish." This article is an excellent one for emphasizing to the dealer in building materials the real value and importance of conducting a well stocked paint and varnish department. There are no other commodities more universally used in building operations than these. Every wooden and metal surface, as well as inside plaster, brick and stone walls must all be finished in one way or another.

"We are unable to think of any good reason why this line should not bring as desirable a class of tradespeople to the building supply dealer as to the hardware, drug and department stores.

"The agency for a well known and well advertised brand of paints and varnishes ought to prove a most effective proposition to any live building supply dealer.

"Yours very truly,

"THE SHERWIN-WILLIAMS CO."

A large number of dealers have also written in asking for information and literature on the subject of paints and varnishes, and this fact shows that they appreciate the truth of the case as it has been set before them and are interested in adding these lines to their stocks.

The State Geological Survey of Nashville, Tenn., is sending out attractive literature, descriptive of the resources of that state. Among the materials exploited in this report are coal, clay, copper, iron and manganese. One of the booklets sent out describes a new deposit of the last named material.

In order to comply with a request of the government concerning the designation of steel wire gages the American Steel & Wire Company has issued a circular saying that upon the recommendation of the Bureau of Standards the wire gage heretofore known as "American Steel & Wire Company's Gage" will in future be designated as the "Steel Wire Gage."

We are in receipt from the Taylor Iron & Steel Company, of High Bridge, N. J., of bulletin No. 100-B, illustrating and describing Tisco Manganese Steel Gears and Pinions, and bulletin No. 113, illustrating and describing Tisco Manganese Steel Chain and Sprockets. A copy of these bulletins would be of interest to many of our readers.

The Munroe Quarries, of Huntington, Ind., has been incorporated with capital stock of $25,000. The incorporators are William John, Mrs. William Johnson and Mrs. Ruth S. Millian.

The Standard Stone Company, of Tulsa, Okla., has been incorporated with a capital stock of $50,000. The incorporators are: E. M. Alford, C. E. Shannon and T. J. Sidener, of Muskogee.

The H. Wright Stone Company, Piedmont, Ala., has been organized with a capital stock of $10,000.

Arthur Prather and Luther Miller will erect a stone crushing plant at Athens, Tenn.

FOR THE RETAILER

BOOST

National Builders' Supply Association Convention in New York in January Needs You.

The question is not what shall we do about a new treaty with Russia, what is to be the outcome in China or what candidate for the presidency should be boosted, but simply—"Are you going to the National Builders' Supply Association meeting in New York in January?" The strifes, the battles and the struggles of the entire universe are thrown into the shade or take a back seat, and that one question is before the house. It has to be answered by each one for himself and in duty to himself, his trade and the association there can be only one answer—"I'll be there."

Now ROCK PRODUCTS has been urging a united front of support for the National Builders' Supply Association for the sole reason that it believes in the association idea, believes in the association and believes in the individual members of it.

A recent letter of President Warner says frankly, but with no idea of complaint, that the association has not been supported in the past as it should have been because of apathy—a disposition to stand aside and let the other fellow carry all the burdens and do all the work. An association, in order to give the best possible results to the individual members and be effective as an association must have the undivided support of its members not alone financially but in the matter of work and interest. And this interest ought to be manifested at least by attendance at the meetings, which heaven knows are not held at very frequent intervals.

A year is a long time to be away from some of those good souls you meet there. It is a long time for them to be away from the encouragement they get from you.

"No man liveth to himself alone" is the foundation and the essence of the association principle. You know it. All the kindness and good cheer we get in the world is the kindness and good cheer that we give away.

This line of talk is handed to you as a good fellow. Now to the more prosaic and practical side of the proposition. Here is what you will get: The convention will be held during the great cement show at Madison Square Garden and immediately following is the meeting of the National Lime Manufacturers' Association. Can you ask for more than that? The meeting comes at a time of the year when you are no use around your office anyway. There's nothing doing and you are in the way of the clerk and stenographer.

Is there any place on earth so desolate and dreary as your office at the end of January? The pigeonholes of your desk reek with the memories of the year just gone and the wind howling around the corner reminds you that the days are not very near when your teams will start to deliver stuff for the spring's operations.

This is the time intended by Providence in an all wise scheme for you to get out and be some real good in the world and of value to the others of your kind.

Come on and go to New York and forget everything else except that you are to put your shoulder against the association band wagon and give your little push.

It is always easy to write that "The meeting this year will be the best ever." That is a part of every notice about a coming meeting of the association. Now, well knowing that the Recording Angel stands ready to make a long dark mark if it is not sincere, we say that the meeting this time will eclipse in point of interest and attendance and importance to the trade any ever held before.

Why, one good soul somewhere west of Rahway, sent in this appeal:

"ROCK PRODUCTS, Chicago, Ill. Gentlemen: In reading your November issue of your wonderful publication I note that you speak editorially of the coming meeting of the National Builders' Supply Association, which will be held in New York City during the cement show.

"Don't you think it would be opportune for you to speak in your December issue what good an association of this kind and scope could really do if they put their shoulder to the wheel, and ask for contributions toward the employment of an agency to travel the country for the purpose of bringing together the warring factions existing among the local dealers in the majority of the towns and cities of the universe.

"My personal experience from attending meetings of this character has been that the wholesaler and retailer meet, and Jim Jones, a retail dealer of Piankatank, and John Smith, a wholesaler of Pittsburgh, get together, and Jim Jones tries to see how hard he can knock Bill Smith, a fellow dealer in the same town. I'm not a pessimist, but an optimist. Now, honest, don't you find the same condition existing?

"I certainly hope that you will feel justified in using this letter and at the same time spring a good strong editorial in both your December and January numbers admonishing the dealers to be honest with each other and watch their organization grow.

"Appreciating your indulgence and thanking you for your efforts towards this good work, I am,

"A BOOSTER."

"Booster" can consider his motion seconded and carried unanimously.

OHIO DEALERS TO MEET.

The seventh annual convention of the Ohio Builders' Supply Association will be held at Dayton, Ohio, January 25 and 26, with headquarters at the Algonquin hotel. These dates were selected by the executive committee for the reason that the Ohio Lumber Dealers' Association will hold its convention in the same city January 23, 24 and 25, which fact will make it very convenient for quite a few of the members to attend both association meetings with the least possible time away from business.

A number of matters of importance to building supply dealers will come before the convention, such as the subject of mutual fire insurance, one cent letter postage, and the objects of the newly organized National Federation of Retail Dealers. These matters will be thoroughly discussed.

The Ohio Builders' Supply Association is famous for the genuine good feeling and cordiality that characterizes its sessions. All the old stalwarts will be there. Every dealer in Ohio and those who can get there from neighboring states is welcome.

FARMERS USING MORE CEMENT.

E. S. Cheaney & Company of Petersburg, Ill., have a yard that is a model both for sightliness and for arrangement. Mr. Cheaney, who is one of the leading retailers in Illinois, has succeeded in storing in his attractive sheds and warehouses a stock which if it were not carefully placed would require quarters fully two or three times as large. The sheds and roofs are not solid, leaving room for ventilation and light in the driveways, yet defying the most driving storms. The runners are of concrete and the whole structures are so well braced that it is possible for him to store clear to the roof, placing staples beneath and occasional sellers above. This firm does a big business in Red Ring and Lehigh cement, Marblehead lime and Vulcanite roofing. Mr. Cheaney has found a pleasing condition the last year in his territory and is able to report a gratifying but not sensational volume of small orders. "The use of cement by the farmer is decidedly on the increase," he says.

The whole retail business for the year was not up to last year's but was not depressed by any means. A look around this place makes it easy to understand why a regular trade is maintained. New customers are always coming. The office is as neat as the proverbial pin.

BUILDING

Operations Show a Decrease of Five Per Cent in the Year 1910, According to Government Statistics Just Issued.

The following statistics, compiled by Jefferson Middleton, of the Department of the Interior, U. S. Geological Survey, are here presented for the first time and are a subject for thought in the building material industry:

The following tables show the building operations of some of the leading cities of the country. An effort was made to obtain detailed figures for all cities of 35,000 or more inhabitants—157 in number. For 127 cities sufficient detail was received to include these cities in a table; for 18 cities only the totals for permits and cost of buildings could be obtained; and for 12 cities data were not procured.

The first table shows a comparison between 1909 and 1910 in 51 cities, also the increase or decrease in the cost of building operations in each of these cities and the total decrease in 1910.

Used as an index of prosperity, the figures here given show that the building industries were not as prosperous as in 1909. Where an exact comparison could be made, the decrease of nearly 5 per cent was recorded.

Of the 51 cities included in this table 29 showed increase in 1910 over 1909 and 22 showed decrease. The total increase was $49,591,299; the total decrease was $87,415,865—a net decrease of $37,824,566, or 4.90 per cent. In 1909, of these same cities 45 showed increase over 1908 and 6 showed decrease, the net increase for that year being $205,772,160, or 36.34 per cent. Compared with 1908 there was an increase in 1910 of $167,947,594, or 29.66 per cent. The greatest increase in 1910 was in Los Angeles, Cal., $8,427,771, or 63.58 per cent. The largest proportionate gain was in Toledo, Ohio, where the cost of building operations in 1910 was more than twice as large as that of 1909. The largest decrease was in New York—$31,971,852, or 17.18 per cent. The next largest decrease was in Brooklyn—$25,034,203, or 38.95 per cent. These two cities contributed 65.21 per cent of the total decrease. The largest proportionate decrease was in St. Joseph, Mo.—49.91 per cent.

Of the 6 cities that showed decrease in 1909, Dayton, Oakland, and Toledo showed increase in 1910. The last two more than regained their losses of 1909 and in 1910 exceeded the cost of building operations of 1908. Nashville, New Orleans, and San Francisco showed decrease in both 1909 and 1910. San Francisco's building operations have undoubtedly reached a normal condition after the abnormal conditions obtaining following the great fire of 1906. The annual cost of building operations in that city since 1904 has been as follows: 1905, $18,268,753; 1906, $34,927,396; 1907, $56,574,844; 1908, $31,668,341; 1909, $26,184,068; and 1910, $20,508,556.

The total number of permits or buildings fell from 213,498 in 1909 to 212,457 in 1910, a decrease of 1,041, or 0.49 per cent; in 1909 there was an increase of 38,904, or 22.28 per cent. The number of permits ranged in 1910 from 389 in Cambridge to 23,255 in Chicago. The average cost of operations in these 51 cities in 1910 was $3,455 per building or permit; in

Building operations in a number of the leading cities of the United States in 1909 and 1910.

City.	1909		1910		Increase (+) or decrease (−) in 1910.	Percentage of increase or decrease in 1910.	Rank of cities in cost of buildings in 1910.
	Number of permits or buildings.	Cost.	Number of permits or buildings.	Cost.			
Atlanta, Ga.	4,399	$5,551,951	4,001	$6,645,167	+$1,093,216	+ 19.69	30
Baltimore, Md.	3,076	9,761,788	2,841	11,771,680	+ 2,009,892	+ 20.59	19
Boston, Mass.	3,702	16,756,431	3,608	20,869,671	+ 4,113,240	+ 24.55	7
Brooklyn, N. Y.	13,756	64,267,301	9,892	39,233,098	−25,034,203	− 38.95	3
Buffalo, N. Y.	3,361	9,895,000	3,494	9,232,000	− 663,000	− 6.70	24
Cambridge, Mass.	490	2,249,745	389	2,339,900	+ 90,155	+ 4.01	65
Chicago, Ill.	21,941	95,238,380	23,255	101,098,700	+ 5,860,320	+ 6.15	2
Cincinnati, Ohio.	3,181	7,429,529	4,050	8,052,870	+ 623,341	+ 8.39	28
Cleveland, Ohio.	6,834	13,028,294	7,460	13,948,413	+ 920,119	+ 7.06	14
Columbus, Ohio.	1,790	3,508,601	2,363	5,133,591	+ 1,534,990	+ 42.66	36
Dayton, Ohio	794	1,700,500	1,082	2,015,000	+ 314,500	+ 18.40	77
Denver, Colo.	3,270	11,554,983	2,683	11,319,955	− 235,028	− 2.03	20
Detroit, Mich.	4,399	14,301,450	5,498	17,415,950	+ 3,114,500	+ 21.78	11
Fall River, Mass.	461	1,146,702	469	1,544,129	+ 397,427	+ 34.66	90
Grand Rapids, Mich.	1,290	2,872,427	1,268	2,255,621	− 616,806	− 21.47	71
Hartford, Conn.	863	3,440,925	1,053	4,541,979	+ 1,101,054	+ 32.00	40
Indianapolis, Ind.	3,931	7,156,560	5,112	8,194,311	+ 1,037,751	+ 14.50	25
Jersey City, N. J.	1,466	6,882,610	1,522	6,932,570	+ 49,960	+ .73	28
Kansas City, Kans.	728	1,196,390	800	1,101,356	− 95,034	− 7.94	110
Kansas City, Mo.	4,194	13,367,730	3,147	12,819,690	− 548,040	− 4.10	17
Los Angeles, Cal.	8,522	13,256,329	10,738	21,684,100	+ 8,427,771	+ 63.58	6
Louisville, Ky.	2,823	2,972,505	2,468	3,996,792	+ 1,024,287	+ 34.46	40
Lowell, Mass.	506	1,328,853	562	1,777,654	+ 448,801	+ 33.77	81
Memphis, Tenn.	2,556	4,324,377	3,419	6,280,498	+ 1,956,121	+ 45.23	31
Milwaukee, Wis.	5,068	11,841,713	4,086	9,797,580	− 2,044,133	− 17.26	23
Minneapolis, Minn.	6,055	13,002,390	6,225	14,363,830	+ 1,271,440	+ 9.71	13
Nashville, Tenn.	2,231	1,676,572	2,010	1,541,945	− 134,627	− 8.03	91
Newark, N. J.	3,082	14,177,159	3,001	13,394,812	− 782,347	− 5.52	15
New Bedford, Mass.	986	6,267,650	1,179	7,037,337	+ 769,687	+ 12.28	27
New Haven, Conn.	1,047	4,226,322	1,035	4,386,065	+ 159,743	+ 3.78	43
New Orleans, La.	2,795	5,165,212	2,530	4,483,730	− 681,482	− 13.19	41
New York, N. Y.	7,629	186,047,477	6,877	154,075,625	−31,971,852	− 17.18	1
Oakland, Cal.	3,286	5,318,512	3,968	6,913,643	+ 1,595,131	+ 29.99	29
Omaha, Nebr.	1,606	7,204,140	1,533	6,250,988	− 953,152	− 13.23	32
Philadelphia, Pa.	17,294	42,881,370	16,383	37,866,565	− 5,014,805	− 11.69	4
Pittsburgh, Pa.	2,503	14,026,888	3,903	12,753,664	− 1,273,224	− 9.08	18
Portland, Oreg.	4,739	13,481,380	6,523	20,886,202	+ 7,404,822	+ 54.93	6
Providence, R. I.	1,788	5,340,500	2,306	4,935,300	− 405,200	− 7.59	39
Reading, Pa.	458	1,046,900	411	1,054,555	+ 7,655	+ .73	111
Richmond, Va.	1,378	3,874,812	1,397	4,012,822	+ 438,010	+ 12.25	48
Rochester, N. Y.	3,122	9,272,132	3,456	10,082,528	+ 810,396	+ 8.74	21
St. Joseph, Mo.	957	2,255,759	772	1,129,931	− 1,125,828	− 49.91	108
St. Louis, Mo.	9,279	23,733,272	9,419	19,600,063	− 4,133,209	− 17.42	9
St. Paul, Minn.	4,158	12,158,354	3,809	10,053,006	− 2,105,348	− 17.32	22
San Francisco, Cal.	6,773	26,184,068	5,600	20,508,556	− 5,675,512	− 21.68	8
Scranton, Pa.	975	3,987,943	894	2,085,943	− 1,901,995	− 47.69	75
Seattle, Wash.	14,884	19,044,335	13,082	17,418,078	− 1,626,257	− 8.54	10
Syracuse, N. Y.	1,573	4,855,811	1,701	5,019,032	+ 163,221	+ 3.36	38
Toledo, Ohio.	1,314	2,014,462	1,732	4,058,188	+ 2,043,726	+101.45	47
Washington, D. C.	9,935	15,468,635	5,847	16,278,658	+ 810,023	+ 5.24	12
Worcester, Mass.	1,270	4,314,435	1,514	3,919,652	− 394,783	− 9.15	31
Total.	213,498	771,937,564	212,457	734,112,998	−37,824,566	− 4.90	.....

1909 it was $3,616; and in 1908 it was $3,243. In New York the average cost was $22,404 in 1910, $24,387 in 1909, and $19,305 in 1908. In Chicago the average cost was $4,347 in 1910, $4,341 in 1909, and $6,327 in 1908. In Brooklyn, the third largest city in cost of building operations, the average cost was $3,966 in 1910, $4,672 in 1909, and $4,259 in 1908. In Philadelphia the average was $2,311 in 1910, $2,480 in 1909, and $2,107 in 1908. In San Francisco the average was $3,604 in 1910, $4,536 in 1909, $4,706 in 1908, and $8,789 in 1907.

New York reported the construction of fire-resisting buildings at a cost of $152,455,665, or 24.44 per cent of the total for this class of buildings; this was a decrease of $29,462,672, or 16.20 per cent, from 1909. Chicago was second, as in 1909, with a cost of $89,200,400, or 14.30 per cent; this was an increase over 1909 of $10,094,900, or 12.76 per cent. Brooklyn, which was third in cost of fire-resisting buildings in 1909, was fourth in 1910, being displaced by Philadelphia, which reported for 1910 a cost for this class of buildings of $37,480,425, or 6.01 per cent of the total; this was a decrease from 1909 of $5,090,345, or 11.96 per cent. Brooklyn reported buildings of this class costing $33,304,458, or 5.34 per cent of the total; this was a loss of $21,354,263, or 39.07 per cent. St. Louis was fifth, with a cost of $18,028,777, or 2.89 per cent of the total, which was a decrease of $4,394,152, or 19.60 per cent. Boston was sixth, with a cost of $15,064,236, or 2.41 per cent of the total, which was an increase of $5,286,242, or 54.06 per cent. Washington was seventh in cost of fire-resisting buildings, reporting a cost of $13,685,841, or 2.19 per cent of the total; this was an increase of $1,404,836, or 11.44 per cent. Portland, Ore., was eighth in cost of fire-resisting buildings in 1910 and eighteenth in 1909. San Francisco, which was sixth in 1909, was tenth in 1910; Denver was eighth in 1909 and eleventh in 1910; Baltimore was tenth in 1909 and twelfth in 1910; and Seattle was fourteenth in 1909 and thirteenth in 1910. Of these leading cities in the cost of fire-resisting buildings, Duluth made the greatest proportionate gain —385.77 per cent, or from $2,442,344 in 1909 to $11,864,245 in 1910.

The leading city in the number and cost of concrete buildings in 1910 was Chicago, as in 1909, this city reporting 542 buildings, costing $6,626,000, as compared with 519 buildings in 1909, costing $9,894,800. The city ranking second in cost of concrete buildings in 1910 was Portland, Ore., which reported $3,670,000, followed by St. Louis, with $3,103,138. Of the 127 cities reporting, 90 report 2,321 new concrete buildings; in 1909, of 128 cities, 79 reported new concrete buildings.

Miscellaneous fire-resisting buildings, which include steel-skeleton buildings, were reported from 45 cities for 1910. New York was the leading city in this class of construction, reporting a cost of $12,390,600, with Duluth, Minn., second, with a cost of $10,962,250.

Douglas & Dunn have sold their retail yards at Walworth, Wis., and Zenda, Wis., to the Walworth Lumber Company.

Damage of $35,000 to the retail yard of the Steinmeyer Lumber Company, Collinsville, Ill., was caused by a fire Nov. 20.

Building Commissioner McKelvey, of St. Louis, believes the building regulations in that city are too strict and has invited architects to assist in revising the building code.

IN WASHINGTON.

The Standpoint of Building Materials Is Different From Every Other Market.

When the site for the present city of Washington was chosen for the erection of the capitol of the United States it stood geographically somewhat west of the actual center of population, but exactly at the center of the then carefully made calculations of where the population would be as soon as the whole territory of the nation should be filled up. Such men as Washington, Jefferson, Adams, Franklin, Hamilton and the rest of them figured the permanent center of the future population to fall exactly where the dome of the capitol now stands. The District of Columbia was ceded by the states of Maryland and Virginia for the specific purpose of constructing the governmental plant at a rural location, separate and apart from local influences of any great commercial city or any state politics. This was only a little more than one hundred years ago, and the district as originally surveyed contained the small village of Georgetown; otherwise it was fairly good farming land.

George Washington laid the cornerstone of the capitol with corn and oil and wine, according to Masonic ceremonial, in which the first President, as Grand Master, handled the silver trowel and golden square and compass. The cornerstone is said to be a carved block of Virginia marble containing a sealed copper box, a part of the contents of which are listed and known, and another portion of papers, etc., never recorded.

The first inhabitants were building material handlers, contractors and mechanics, living for the most part in tents and log huts thrown up temporarily upon Capitol Hill and at the shore of the Potomac River, which afforded all the transportation available for passengers and freight.

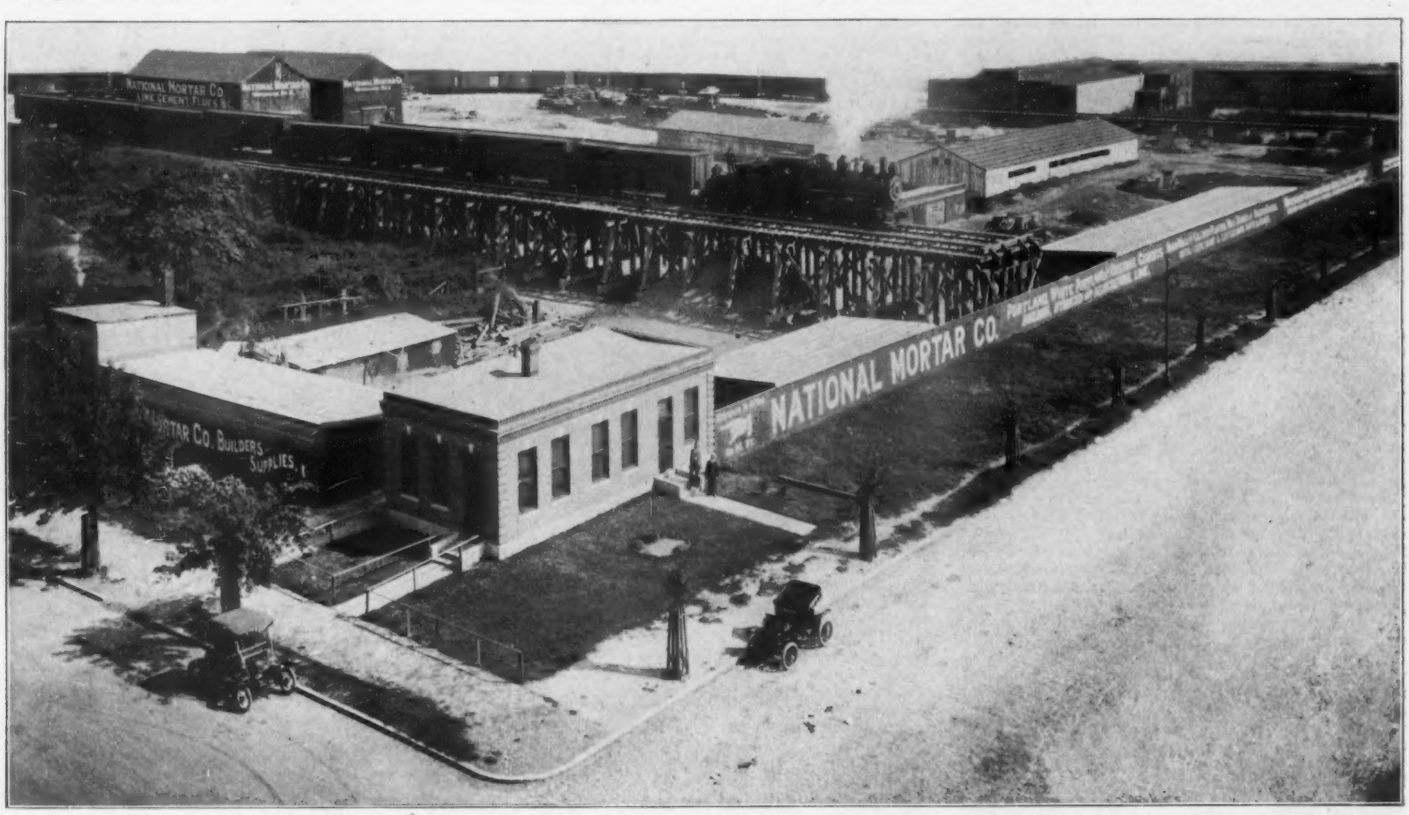
The capitol was more than fifty years in reaching completion, with all the successive changes and additions to the original plan that were adopted from time to time, and it is indeed a wonder that so creditable a job should be the result of any such process of construction. The total cost of the capitol has never been stated; in fact, it would take a large explanatory volume to give any correct idea of the expenditures; but as most of it was built long before the gentle art of modern grafting was invented, in all probability it was plenty cheap enough. There were no sympathetic strikes nor walking delegates nor jurisdiction jangles, for it was all done by men who worked for the boss and not against the boss as they do now.

There is no place in the world where building has been done for a century continuously and upon such a magnificent scale as in Washington. The wealth, the genius and the art of the whole continent has been lavishly bestowed and concentrated to make a worthy capital city to reflect the majesty of the government by the people and for the people—the sovereignty of the majority. One department after another has been provided with a monumental building, and every state in the Union has furnished building materials—in stone from the quarries of marble and granite and limestone, in clay and terra cotta, in lime and cement and plaster, in timber and forest products of every kind, in paints and pigments and all manner of decorative matter for finishing, in iron and steel, copper and brass and bronze, the products of mines and furnaces. All of the materials have been brought from quarry, mill, furnace and factory elsewhere, for Washington maintains its original character and remains a non-commercial and non-industrial city. First by flat-boat and ox-team, later by steamboat and railroad, every stone, brick, plank and shingle that makes the great government piles has been brought to Washington.

While the big and little guns in national politics are always in the center of the stage and hold the public attention, the most important men to physical Washington, the splendid city that will be the wonder of the world in another century, have always been and are now the builders—the men of brick and stone, of lime and cement, of plaster and paint and metals. The work of the builders is progressing rapidly now, the millions upon millions that have been expended are the best announcement of what is yet to come in the working out of definite artistic and utilitarian plans to complete the grand governmental plant.

The office buildings for the senators and the representatives and the Union depot are the latest important acquisitions to artistic Washington. The city postoffice adjoining the Union depot, to complete one of the group plans, is the next step. In all probability the postoffice will be finished in Bethel granite to match the depot, and it will be done in a single year, for it takes no longer to spend a million now on a big building than it did to spend a thousand fifty years ago. The man who knew Washington well thirty years ago would be a stranger there now, and all this change is chargeable to the builders.

It was just about thirty years ago that S. Dana Lincoln, who is the brightest permanent light in the building material line in Washington, first started with the National Mortar Company, of which he is



YARDS, SWITCHING TRACK AND OFFICES OF THE NA TIONAL MORTAR COMPANY, WASHINGTON, D. C.

the sole proprietor. At that time mild-eyed cows fed copiously of the grass that grew beside the curb lines of the avenues, and there was a specially commissioned functionary to keep domestic animals from browsing along the cinder paths that then led up to the capitol. Before modern hard streets came into vogue it was no strange sight to see comfortable swine wallow in a street puddle lazily, while the nation's brains minced by upon the narrow margin to save the senatorial shine of dignified shoe leather.

With the march of progress Mr. Lincoln has moved the headquarters of his building material establishment to M street, N. E., adjoining the railroad tracks that run into the new Union depot. With level-headed forethought he acquired several acres in the just right location and, as our illustration shows, equipped the property with the most modern type of gravity handling devices. Warehouses, yard, stables, sheds and offices are all systematically arranged so as to minimize the cost of handling the heavy tonnage that streams through the establishment for Washington building operations. Crushed rock, sand, cinders and similar materials are loaded by chutes direct to wagons beneath the trestle, which carries two tracks with a total capacity of twenty cars.

In the construction of the office Mr. Lincoln had an eye to personal comfort. The private office or den is provided with an adjoining bath room equipped with a luxuriant shower, so that the hottest days of the southern climate in the busy building season have no terror for the proprietor. In fact, his own den in the midst of his business is the most comfortable place in the city. Possibly that is one good reason why he is always on the job.

There is no better entertainment conceivable than to ride Dana Lincoln's auto about the national capital while he explains the great building projects with which he is in close personal touch. He is always at the M street office except that portion of the day absorbed by his duties as a director of the Lincoln National Bank, which he is always careful to explain was named after Abraham and not Dana Lincoln, as one might suppose. Active and popular, always in touch with the biggest doings in the important features of the city, this very successful dealer in builders' supplies leads an ideal life of his own selection and is surrounded by hosts of friends who appreciate his attractive personality far and beyond the well merited success that has crowned his efforts as a business man.

LOUISVILLE RETAILERS.

Louisville, Ky., December 18.—Warm weather during the early part of December stimulated business among the building supply men to a marked extent, helping the roofing men especially. Rain, later in the month, however, retarded operations to a considerable extent.

Business during the year 1911 compared favorably with that of other years and the retailers are by no means cast down over the somewhat apathetic conditions which prevail just now. On the contrary, most of them are confident that business will show a big improvement in a very few months.

The retailers are much interested in the annual report of Building Inspector Robert J. Tilford. While this is not complete, it shows a big increase in building operations. For the first time in the history of the city, Louisville will pass the $6,000,000 mark. During the eleven months of the year, more than 2,300 permits were issued. The fiscal year ending August 31 was the largest in building operations in the history of the Gateway city. The calendar year also will eclipse all former marks. The total for eleven months is $6,097,315. If the permit for the new Young Men's Christian Association building is taken out before the end of the month, Colonel Tilford expects the total for the year to be about $6,500,000.

This high figure has been reached through the medium of the issuance of permits for an unprecedented number of skyscrapers. These include the Watterson hotel, the Inter-Southern building and the office building erected at Center and Jefferson streets. Work on these has begun, and in the case of the hotel building, is almost completed. These facts indicate that the past year has been an excellent one for retailers.

WEST COAST RETAILERS.

San Francisco, Cal., Dec. 16.—The building material business is in fair shape all over the Coast. Portland, Ore., is the busiest of the larger cities, the valuation of buildings started in November being $2,046,785, the largest since last December. In San Francisco the record for November was $1,617,890, compared with $1,617,890 for October and $992,258 for November, 1910. A substantial improvement is noted in Oakland, where there is more building than for several years past at this season, while conditions in Los Angeles are about the same as last month. The activity of the market in Oregon is indicated by a constant movement, not only of cement, but brick, lime and other building materials, to that state from California. Work has been facilitated in California by the fact that the rains are holding off unusually late in the season, but it is expected that business will be somewhat curtailed by wet weather from now on.

O. K. Palmer has made arrangements for the organization of a new concern, to be known as the Builders' Supply Company, at Chehalis, Wash.

TWIN CITY RETAILERS.

Minneapolis, Minn., Dec. 18.—The building season for 1911 is drawing to a close with a pretty slow period ruling, outside of a few public jobs like school houses. On the whole, the season has not been a bad one. Minneapolis will run very close to a year ago in building permits, and last year was a very heavy season, aggregating $14,000,000. St. Paul has had a somewhat quieter season this year than last, but will make a creditable showing in the figures, especially if a number of fairly good sized jobs, which are in view, shall come in on the 1911 records. Through the interior the volume of work as a whole has been hardly as heavy as usual, though it has maintained a fair average.

Cement and concrete construction has been variable in volume. There have been some good jobs in reinforced concrete construction in the Twin Cities, and also some outside. The number of jobs of concrete block construction have been very few during the present year. There have been a few of them reported but they have been materially less than a year or so ago.

The cement market has been fairly steady on the low basis of prices which has been ruling. Complaints are made that the larger jobs of cement, involving orders running into the thousand bags, have gone at figures too low to make any money on them. There has been a great deal of cement used in street improvement work, such as concrete base for paving, an occasional job of concrete paving, some reinforced concrete sewer construction, and a great deal of cement sidewalk work.

O. U. Miracle, of Kalispell, Mont., has been in Minneapolis for a brief visit, after having had a strenuously busy season in cement sidewalk and other construction in various towns in Montana, Idaho and Wyoming. He expects to put in a couple of months on the Pacific coast during the winter, before the new season opens up.

H. A. Berlage, a distinguished Holland architect, was recently in Minneapolis. Mr. Berlage made the statement that he anticipated among the architectural accomplishments of the future that the enterprising American architect would be able to devise grain elevator structures of concrete along lines that would be architecturally attractive. He believes that concrete lends itself more readily to artistic treatment than does steel. In view of the severely prosaic and practical lines of concrete elevators now, either of the tank or flat side shaped, it will be observed that the enterprising architect who solves the problem will have to "go some."

The Northern Builders' Supply Company, of Minneapolis, is a new incorporation with a capital stock of $25,000. The incorporators are T. L. Hartnett, J. R. Simpson and F. A. Hitchcock, all of Minneapolis.

The high school of Jordan, Minn., held a short course of two weeks in concrete work, along the lines likely to be used on the farm, with great success. The course started December 4. It included information upon the construction of mixing and handling concrete for making water tanks, silos, floors, culverts, walks, foundations and many other applications of concrete.

NEW YORK RETAILERS.

New York, N. Y., Dec. 18.—The local building material market has not shown any signs of improvement during the past month and the business was dull and lifeless and along the lines of our report for the previous month. A little business was transacted in a hand-to-mouth way, and orders were for immediate or nearby requirements only. The Portland cement trade continued along quiet lines. The demand for lime was fairly good, and brick was in a fair demand except in the latter part of the month when the price was reduced 25 cents per thousand. The building season will close as soon as the severe weather sets in, and dealers are of the opinion that the winter season will be a dull one as is usual at this time of the year.

Building material business in Peoria, Ill., was good in November as over one bridge alone there passed 2,781 wagon loads of sand and gravel, 590 loads of brick and 285 loads of crushed stone.

WHITE PLAINS RETAILERS.

White Plains, N. Y., Dec. 16.—Ten years ago C. G. Swackhamer commenced dealing in coal, wood and building material. The business has grown to large proportions and has been a successful one from the start. His office is located at 96 Railroad avenue, White Plains. He operates two large yards on Westmoreland avenue and the tracks of the New York Central Lines. Each of these yards cover an area of 100'x150' and are arranged admirably for handling material economically and making prompt delivery to job. The warehouse has a storage capacity of 1,000 barrels of cement. He handles the product of the Edison Portland Cement Company; plaster of the Wotherspoon Plaster Company, Long Island, N. Y.; lime of the Farnam, Cheshire Lime Company, Cheshire, Mass., New England Lime Company, Danbury Conn.; Akron, O., sewer pipe, flue lining, wall coping, etc., of W. B. Albey & Co., Newark, N. J.; metal lath of the Gary Iron & Steel Company, New York City; fire brick, fire clay of D. E. Prudden, New York City; terra cotta blocks, sand pressed brick of Friedensporg & Loansberry, New York City; common brick and everything needed by masons and builders. He reports that business has been very brisk commencing with the fall season and that he is very busy supplying building material

The Cowen Coal, Feed & Lumber Company is one of the old and leading firms in its line in White Plains. Its office is in the Central Bank Building, corner of Railroad avenue and Court street. Its yard is located on Bronx street and the Highland Division of the New York Central Lines, and has two switches running into it from this railroad. It expects to locate another yard next spring in the Putnam Division of the New York Central Lines. Its warehouse, a three-story structure, has a storage capacity of 700 barrels of cement. It handles Universal, Alpha, Alsen, Vulcanite and Dexter Portland cements; plaster of the Rock Plaster Manufacturing Company, of New York City; hydrate of the Kelley Island Lime and Transport Company, Cleveland, O.; sewer pipe, flue lining, fire brick, fire clay of the St. Mary's Sewer Pipe Company, St. Mary, Pa.; metal lath of the Gary Iron and Steel Company, New York City; pressed brick of the Harlem Valley Supply Company, White Plains, N. Y.; common brick of Willson & Eaton Company, Amenia, N. Y.; mortar colors, sand, gravel etc. Business was reported at the company's office rather slack this year, but a noticeable improvement has been felt since July. The officers of the company are: J. J. Hammond, president; B. B. Hammond, vice president; Tracey Cowen, secretary and treasurer.

Eighteen years ago W. S. Verplank opened his yard in White Plains, stocking it with one of the most complete lines of builders' supplies and whenever any new product appeared on the market which had merit, it found a place in the yard and also found a ready sale. In other words the business has been conducted on progressive lines, and consequently has flourished and prospered. The office is located at 2 B. Martine avenue. The yard is located on Westmoreland avenue and the New York Central Lines. The yard has a frontage of 300 feet on the tracks of this road, with a street frontage on Westmoreland avenue of 300 feet and a depth of 115 feet. A switch track runs through the yard. The warehouse has a storage capacity of 1,000 barrels of cement and is convenient to cars and trucks for handling material stored in it. He handles cements of the Dexter Portland Cement Company and the Penn Allen Portland Cement Company; plaster of the Rock Plaster Manufacturing Company, New York City, and the Wotherspoon Plaster Company, Long Island, N. Y.; lime of the New England Lime Company, Danbury, Conn.; hydrate of the Kelley Island Lime & Transport Company, Cleveland, O.; sewer pipe of Tompkins Bros., New York City and William B. Albey & Co., Newark, N. J.; metal lath, the Kno-Burn brand; the H. W. Johns-Manville Company's asbestos products; pressed and common brick of the Willson & Eaton Company of Amenia, N. Y. Mr. Verplank reports business good and prospects brighter than they were for this year.

Supple & Rosemond, dealers in builders' supplies have purchased a warehouse at 309 East North street, Danville, Ill., for $20,000 and will manufacture cement posts in large quantities. The property is located on the Chicago & Eastern Illinois railroad tracks and is ideal for heavy shipping.

The Teets Construction Company, Westfield, N. J., real estate, builders, etc., was incorporated under New Jersey state laws December 4; capitalization, $50,000.

SAND AND GRAVEL MEN ORGANIZE

National Association Is Born at an Enthusiastic Convention in Chicago and the Industry Will Be Given a Boost All Along the Line.

The National Sand and Gravel Producers' Association was organized at the Auditorium hotel in Chicago, December 15 and 16. It is the first general organization in that field and half a hundred companies of the central west were represented.

The enthusiasm displayed was remarkable and every man present, in addition to hundreds who were unable to attend the meeting, stand ready to join forces and help trade conditions in the sand and gravel field. The first session was called to order the morning of December 15 by E. H. Defebaugh.

In stating the objects of the meeting Mr. Defebaugh said:

On behalf of the trade ROCK PRODUCTS took upon itself to call together the men in the sand and gravel business that they might know their own business and become better acquainted, so that when legislation comes up affecting their interests, they can stand shoulder to shoulder and have a friendly feeling for each other.

The object of this meeting today is to form the nucleus of the National Association of Sand and Gravel Producers that you may broaden the scope of your market; that you may exchange information on the better inspections of your product, and get closer up with the man who is working with you and selling to the builder the material for a home and the material for public work. Friendship begets confidence. Confidence is the foundation of good business. When the men in this association come here for two or three years and join hands in a social as well as a business way, it will make it possible to get closer together and make quality goods and put them on the market and enable all of you to get a fair price for your product.

In these trying times of business life without some guiding hand in the way of a national or local organization, prices are demoralized and there is no coöperation, which results disastrously. When you come to put $200,000 or $300,000, or $25,000 or $10,000 into your business, and you have to charge off 15 or 20 per cent for depreciation, in addition to your other expenses, you have not made any money. But if you have not charged off something for wear and tear of your plant, and added a good fair profit to cover all the contingent expenses which come up in business life, you have not made any money. When you really need the money you are more likely to take the other fellow's figures as a basis for your quotations than if you had enough business to keep your plant in operation. In other words, competition makes the price. If you are not a working member of this association and come out from Indianapolis with two or three other men in the same line of business, you may think the other man has got a horn—you may think he is a scoundrel anyway, but after you get to know something about him and you come to the National Association and get closer together you begin to find out that the other man is a good fellow, and you work together.

I know that there are a great many people who interpret the Sherman law to mean that business men must not get together to control trade. Self-preservation is the first law of nature. The business men of this country can not get along without associations, if only for the exchange of information; but they are very foolish if they do not go further. We have some startling conditions in the building material business, because the men in the business are jealous of each other, not being big enough or broad enough to recognize the other fellow. Look at the prices material is selling for nowadays. The reason cement is cheap is because there is an overproduction. If the cement manufacturers had a real association; if they believed in one man in that organization who was big enough so that he would not do anything but what was right, and they would follow that leader, the price of cement would not be below cost. I know cases where sand and gravel is being sold below the cost of getting it out. I can also point out many instances where jealousy and bad feeling prevent coöperation.

If this association comes to be a factor, and it is up to you whether it does or not— and you came here because you had an interest in doing business on association lines, and are in sympathy with any movement which has for its object the advancement of the interests of the sand and gravel people, then we can accomplish something which will be of benefit to all of you.

We are here to form an association, and I would suggest that you nominate a man for chairman and a man for secretary. Let us have the basis for the best association in the material business before we leave tomorrow night. It is up to you. I am satisfied that there are not 100 men out of the 700 in the business in the United States who would join the association if the matter was put properly before them. It would be a good thing for all of you to get together once a year to discuss the problems of your business. You know you can learn something every day. Now if we are all good friends, whether large or small operators, and will come together once a year and discuss our troubles, we will all be benefited. I would like to hear nominations for chairman.

F. W. Renwick as Chairman.

On motion made, seconded and carried unanimously, Frank W. Renwick was nominated to act as temporary chairman and took the chair.

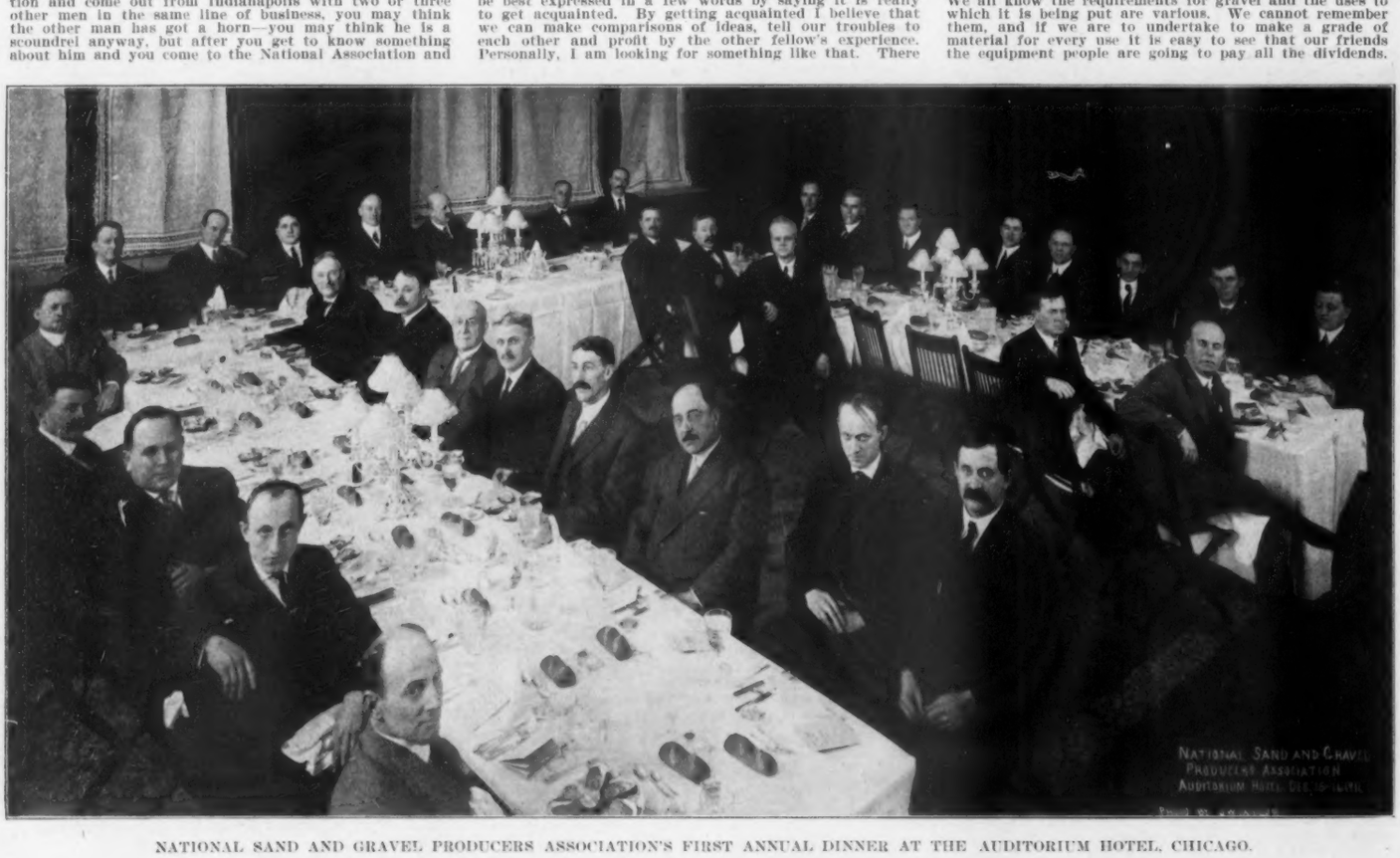
Mr. Renwick: I believe it is customary for the chairman of a meeting to state first the cause for the meeting. Our friend, Mr. Defebaugh, has relieved me of a good deal of embarrassment. I presume you all understand that the call was issued to get together the producers of sand and gravel in the United States, to see if we could effect a permanent organization which would be of benefit to all of us. The cause of the organization perhaps can be best expressed in a few words by saying it is really to get acquainted. By getting acquainted I believe that we can make comparisons of ideas, tell our troubles to each other and profit by the other fellow's experience. Personally, I am looking for something like that. There are very few people in and out of the sand and gravel business who realize how fast the business is growing. I believe I am safe in saying that the business is growing faster than the people in it. Speaking for our own community, it is safe to say that the past five years all of us have been short on some particular class of material at some time of the year. Going even further back than the five years, I believe the demand for torpedo sand has exceeded the supply. This year we have been scarce of gravel. All of this points to progress in our growth, and is flattering in a way to the business.

We have been up against a good many propositions that have only been solved so far by work and money. We might say some of it is wasted, as some of the gravel plants have not taken advantage of installing the most modern equipment. Some of the newer ones here whom I recognize are to be congratulated a little bit on breaking into the game and reaping some of the benefits of the older gravel folks. I think the equipment people will help us out in a large way.

One of the particular points of the game which has been overlooked, as I understand it, is the lack of concentration of our own energies. None of us are very large; we do not make much of a showing individually. If we are put together and combine our efforts we can undoubtedly accomplish a great deal more than we can separately. The railroads themselves, which are an important factor in this game, have not been educated as fast as the business has grown. I can recollect perhaps 10 or 12 years ago when railroad rates were something ridiculous. They were charging twice as much for pulling gravel shipments as on coal. They have gotten over that to a certain extent today. Look at the favorable freight rates which the meat packers receive from the railroads. That is simply because the packers are organized. If we can get together and show the railroads we have some tonnage we will receive some consideration.

I notice that the government report for 1910 shows shipments of sand and gravel for that year of 70,000,000 tons. That is really an increase of 10,000,000 tons over the previous year's shipments, but it is undoubtedly several hundred thousand tons short of the actual shipments. If we assume that the average rate on the shipments of this gravel is 35c per ton, you will see that the earnings of the railroads from the gravel industry alone are approximately $25,000,000 for the year, and this year means but eight months. Just think of it, monthly shipments of $3,000,000 going to the railroads. Very few products which they handle make as much money for them, and there is no reason why we should not have better freight rates than we have. There is a poor probability of our being able to get them by working alone in it. That, with some of the other points, when concentrated, should make the operation of our business much easier, and the results obtained thereby would be much better than they are at present.

One of the things which I think we have all overlooked, which is important in its way, is the uniformity of the class of material we are producing, and the establishment of weights for all this material we are shipping. We all know the requirements for gravel and the uses to which it is being put are various. We cannot remember them, and if we are to undertake to make a grade of material for every use it is easy to see that our friends the equipment people are going to pay all the dividends.



NATIONAL SAND AND GRAVEL PRODUCERS ASSOCIATION'S FIRST ANNUAL DINNER AT THE AUDITORIUM HOTEL, CHICAGO.

We cannot put 100 screens in a plant, but we should be able to bring the users of gravel to a moderate number of requirements, and the only way we can do that is to adopt universal sizes in material.

I believe that the organization of this class of business people is bound to be productive of good results. They may be further reaching than we expect. If we can get together and exchange our ideas, tell our experiences, it surely is not going to be detrimental to us anyway, and it should be beneficial. Now the principal part of the benefit we will get is the discussion of matters of vital importance to the trade by every one present. I will say again that we are here to get acquainted. If you don't know everybody introduce yourselves; if you don't we will know you have not been in the business very long.

E. H. Defebaugh was chosen as temporary secretary and called the roll of those present. As the names were called each one stood up so as to be recognized.

Mr. Defebaugh then read a number of letters, many of which expressed approval of the object of the meeting and were in hearty sympathy with it and regretted that they could not be present. Some of the extracts follow:

Letters of Endorsement.

Carrollton Sand & Gravel Co., Carrollton, Ky.—I am very much interested in this matter and I see nothing to prevent my being present.

Elkhart Sand & Concrete Co., Elkhart Lake, Wis.—We hope that this meeting will develop into a permanent organization, and no doubt it will be beneficial to all producers of sand and gravel.

Chicago Gravel Co., Chicago, Ill.—We consider the idea an excellent one and one which is bound to be productive of good results, not only among the producers in particular, but for the jobbers, retailers and consumers of this class of material.

T. J. Hall & Co., Cincinnati, Ohio—We are heartily in accord with the association, and you may count on us as a stanch supporter and willing to do everything in our power to help make this organization a success.

The Lincoln Sand & Gravel Co., Lincoln, Ill.—We are very much interested in this meeting and we shall be glad to be present.

Mackinaw Sand & Gravel Co., Lincoln, Ill.—Our company is very much interested in the organization and we would be very glad to allow you the use of our name.

Moline Sand Co., Moline, Ill.—We are certainly in favor of this movement and are also in favor of holding a meeting in Chicago.

Utica Fire Sand Co., Utica, Ill.—We are in favor of such a meeting and also like the idea of holding it in Chicago.

Kickapoo Sand & Gravel Co., Attica, Ind.—We consider the suggestion a good one and shall endeavor to attend the meeting.

Munjoy Gravel Co., Portland, Me.—We are heartily in favor of something of this kind and would do our part toward starting such an organization and keeping it up after it was started.

Ballou's White Sand Co., Millington, Ill.—We are interested in your movement for an organization of the sand and gravel producers of the United States and wish to attend the first meeting at the Auditorium.

Bert Halliday, Cairo, Ill.—I would like to see such an association formed, but I think it should be a local proposition and held at the same time of the Illinois dealers.

The Crystal Springs Sand Co., Canal Fulton, Ohio.—I am very sorry that I cannot attend, but will try to get into line a little later.

Indiana Gravel Co., Indianapolis, Ind.—We wish to indorse your suggestion for a meeting of the sand and gravel men. We believe that a movement of this kind will be beneficial.

Hoosier Slide Sand Co., Michigan City, Ind.—We heartily endorse your proposition of forming a national organization of sand and gravel dealers.

Tioga Gravel Co., Ltd., Alexandria, La.—We are in favor of a national organization, to meet at least once a year.

Goodwin Sand & Gravel Co., New York City, N. Y.—We think your move is a good one, and the date of December 15 is all right and we want a representative present at the meeting.

Columbia Silica Co., Portage, Wis.—We are thoroughly in accord with your idea and believe that much good might come from an organization of this kind, especially so if properly handled.

The Hillman Sand Co., Limestone, Ky.—We are very glad you are starting such an organization and feel that it will meet with much success.

Warren Silica Co., Torpedo, Pa.—We are very much in favor of the organization and regret that we cannot be there at the organization meeting.

R. A. Carreker, Cook's Springs, Ala.—I think it will be a grand idea; I have been thinking for some time that we ought to come together and have a better understanding in place of cutting prices.

J. A. Simmons, Fort Smith, Ark.—I am very much in favor of the move you speak of. I am very much opposed to knocking; life is too short.

Joseph Dobbins, Denver, Colo.—I am very strongly in favor of such an organization and I would like very much to be present at your first meeting.

Lake Shore Sand Co., Chicago, Ill.—We are heartily in favor of this meeting, and if there is anything we can do to make it a success we will be pleased to have you let us know.

The Ohio Sand Co., Conneaut, Ohio.—We heartily approve of the plan outlined and believe it will be productive of much good.

The Woodland Lake Sand Co., Youngstown, Ohio.—We may not be able to be present, but we trust that the meeting may be beneficial to all concerned.

E. A. Sherman, Stephens Point, Wis.—I hope if such an organization is formed that it will benefit us in many ways.

Waukesha Concrete Block & Material Co., Waukesha, Wis.—Your suggestion for a meeting of gravel producers will meet with our hearty co-operation.

Gifford Sand Co., Gifford, Iowa—The movement is in the right direction and will result in benefits to all dealers.

Kampeska Materials Co., Inc., Watertown, S. D.—We are in favor of an organization of sand and gravel dealers. On account of our ice business we will be unable to attend.

The Crystal Sand & Gravel Co., Inc., Battle Creek, Mich.—I have read your circulars and letters from different sand and gravel companies and fully accord with the sentiment.

Cement Man Talks.

The chairman then called on C. W. Boynton, of the Universal Portland Cement Company, Chicago, to address the meeting.

Mr. Boynton: I think first that I should congratulate you gentlemen for getting together for such an organization as contemplated, because your business has developed very rapidly, and undoubtedly there are a great many things on which you can exchange ideas to your mutual advantage. Your chairman suggests that I talk to you this afternoon, but I assure you I did not come here to talk. As most of you know I am in the cement business, but our interests are so closely allied that I felt that I could come over here this afternoon without invitation and see what is going on and offer you any assistance that the cement industry can be to you. Certainly you could not find much of an opportunity to sell sand and gravel if it was not for Portland cement. On the other hand, it would be very hard for the cement manufacturers to find a market for their product if it was not for the producers of sand and gravel. I am not associated with the sales end of our business, but with the manufacturing end, and beyond that with the educating of the people to the proper use of our material, and think it is right along that line we can work together to the best advantage.

I do not know what you might not undertake in your organization, but one thing you will undertake I am sure is to educate the consumer to the proper use of your material. If for the sake of selling a commodity the prospective user is told that he cannot use it except in a certain way, and he makes a failure, the man who sold that commodity is a loser as well as the man who made the failure. Every one in the sand, gravel and cement business should be interested in seeing that it is a success, therefore we should offer to the successful user a material adapted to his purpose. The reason for this is that a mixture of sizes ordered by the prospective user may not suit his requirements, and by a study of your

F. W. RENWICK, PRESIDENT NATIONAL SAND & GRAVEL PRODUCERS' ASSOCIATION.

material you are in better shape many times to advise him what he needs than anyone else. We find in our business often architects and engineers, people who are supposed to know the best mixtures, and the proportion to use for the best application of concrete work, make mistakes, and you will find it in your business, and the experience that you gentlemen have had ought to fit you to educate the other fellow and increase the consumption of your material.

I can not talk very well on the line of sand and gravel, except as it is associated with cement. We find in our business that the consumption this year will compare very well with last year. The consumption of cement by the large consumer for the past few years does not compare favorably at all with the consumption of the larger user prior to that time, more especially with railroad work, but by a campaign of education we have been able to keep up the consumption of cement, and in some instances increase it, and believe this year will not show much less. An association can do 100 per cent more along the line of education than an individual, not 100 per cent more, but dollar for dollar. The public will take more kindly to educational data and facts handed out by an association than they will if the same data is handed out by individuals, because they always feel that an individual is looking for direct benefit. We find that so in our cement manufacturers' association. We maintain an office in Philadelphia for the preparation and distribution of all data available on the use of cement, and through that office we find we are very much benefited. Some of the larger companies do a great deal along that line themselves, and so long as the direct advertising is not made a part of the data handed out it is received from the individual with a good deal of interest. At the same time I find an organization has the advantage in that respect.

I don't feel that I should take more of your time this afternoon, but Mr. Defebaugh and your chairman insisted that I should address the meeting, and rather than to have them feel that I wanted to shirk I consented. I want to assure you that in your work, whatever you undertake, the cement trade is very much interested in what you do, and we want to offer you all the assistance possible. If your organization is so perfected that we may become directly associated with you as to hold membership in your association, we shall be glad to work with you in any campaign of education that you may undertake, and I sincerely trust in your organization you will make it possible for us to work with you.

Favorable for Organization.

Mr. Renwick: "It is quite a surprise to me to see the amount of sentiment coming from you on such short notice, and it looks favorable for our organization. The question up to all of us is whether we wish to make this a permanent organization. If we do it will be in line to appoint some committees to report on the subjects we will have to consider, and go ahead with the permanent organization tomorrow. I would like to get an expression from some of those present."

N. C. Fisher, of the Garden City Sand Co.—"I do not think there is any use trying to refute the statements that have been made here by Mr. Defebaugh, who has had experience in other directions of this kind, also the talks of Mr. Renwick and Mr. Boynton. Everybody who has come here today has no doubt felt benefited by the new people whom he has met. I can remember not very long ago it was unusual to meet very many people in the gravel business. It has had its ups and downs, and has come very rapidly into prominence in the last five or six years. I can remember in this market particularly only recently that gravel was not considered as an article of commerce hardly. Way back in the early part of our career gravel was used for making cedar block streets, and there was practically no call for torpedo sand, and it was thrown away. After a while torpedo sand began to be used a little bit. We used to buy it at 50 cents a carload already screened, and at that time we felt as we do now that there was certainly a future for it, and it has steadily gained all along the line. Finally torpedo sand came into prominence and there was no use for gravel. Take in our own city, where stone had a long start in the concrete business, because we had stone quarries right in the city and did not have any freight to pay. We found that there was a use for gravel after a while, and it has been steadily growing, and I think it is general all over the country.

All Should Be Interested.

There is no question that we are ready now to form a permanent organization, and as already stated, we should all be interested, because there are a great many problems to solve in this business which are different to any other business. As representing our company I am certainly in favor of a national organization. I did not think so at first, because I thought it was principally a local business which might be gotten together in certain places, but I have been convinced to the contrary. I believe it is the proper thing to do, and with the constant changing of freight rates going on all the time we ought to get together and declare ourselves once in a while and show that we are alive. A freight man said yesterday that the railroads are bound to get more revenue, and they are going to get it from the point of least resistance, and the traffic manager who is alive is looking out for the business, and if we do not organize we are liable to have the rates advanced on our product. I heard of a number of cases where rates had been raised without any notice. By getting together all these matters can be determined, and there can be no question regarding the benefit of a national association.

Only Limited Competition.

W. F. Bradley, of the Ohio and Michigan Sand Company, favored a national organization of sand and gravel men. He said apart from the few large centers like Chicago there was only a limited competition by reason of freight rates. The freight rate on sand and gravel represented such a large part of the price to the consumer that each producer was limited in the territory he could serve. With a commodity that freight charges made but a fraction of the value to the consumer could naturally find a much wider market. This limited territory close to the point of production could be cultivated and made in some cases a good market for a large part of the output. He said:

There is another point where sand and gravel men could touch elbows to an advantage. In some forms of trade manufacturers have developed special devices or methods of production that they consider trade secrets, but in the sand and gravel trade we can talk "shop" more freely and not fear that we are giving away trade secrets, because a concern in Southern Indiana or Southern Illinois is not in competition with a concern in Northern Indiana or Northern Illinois. A concern in Michigan is not in competition with a producer in Ohio, Indiana or Illinois, so, whatever one producer gains from another in information about methods is not often turned against the other in competition as in some other trades. I therefore think that there may be much benefit from a frank discussion of methods of production.

Now, on the question of quality, or grade, I will quote from Bulletin Nos. 329, 331 and 344, Department of the Interior, United States Geological Survey.

On Page 65, Bulletin No. 331: A mixture of one part cement; three parts sand, shows a tensile strength of 543 pounds per sq. inch at the end of seven days; 655 pounds tensile strength per sq. inch at 90 days; 668 pounds at 180 days, 778 pounds at 360 days. Now, on the same page, S. D. 15, shows a tensile strength of 312 pounds in seven days; 374 pounds, 90 days; 331 pounds, 180 days, and 377 pounds at 360 days. You will note a great difference in the tensile strength of these two tests at 180 days; one shows a tensile strength of 668 pounds per square inch. The other shows 331 pounds per square inch, or only half the tensile strength.

Now, take the tables of compressive strength, Pages 70 and 71. I will cite but a single illustration: S. D. 13 shows a compressive strength of 5,899 pounds at 90 days. S. D. 15 shows 2,033 pounds at 90 days; thus, in one case we have three times the compressive strength that we have in the other.

Now, the causes of these differences are illustrated by the table on page 60. When one grade of sand is separated on graduating screens of 10, 20, 30, 40, 50,

80 and 100 mesh there is retained on these screens the following proportion:

Of the stronger mixture there is 30% on a 10-mesh screen, 30% on a 20-mesh screen, 14% on a 30-mesh screen, 10% on a 40-mesh screen, 6% on a 50-mesh screen, and 5% on an 80-mesh screen.

Now, the mixture of the lesser strength, when tested on graduated screens, shows 1% on a 10-mesh screen; 1% on a 20-mesh screen; 2% on a 30-mesh screen; 8% on a 40-mesh screen, 25% on a 50-mesh screen and 44% on an 80-mesh screen. Thus, you will see that the weaker material was 25 and 44 per cent on a 50 and 80 mesh screen; in other words, a one size material. Now, much of this one size material can be done away with by more careful mining methods, and often the quality of material can be improved by flushing the finer material out in the tailings.

Jesse A. Shearer, Indiana Gravel Company, Indianopolis: I am glad of the opportunity of being here. I am certainly most heartily interested in making this a permanent organization, as I believe it will be very beneficial to us in helping to form a unit of measurements of materials. Down in Indianapolis we have had some trouble in the cubic yard measurement. The best way to sell is by the car, but the consumer needs educating to that unit of measurement for our material.

For Permanent Organization.

The chairman then put before the meeting the question of whether they should make it a permanent organization. A rising vote was taken and everyone present was in favor of it.

The chairman next took up the question of the appointment of committees and made the following appointments:

Organization committee: N. C. Fisher, W. F. Bradley and H. H. Halliday.

Constitution and Bylaws: C. H. Brand, A. Y. Reed, R. A. Rogers, E. C. Theobald and G. W. Bunker.

Resolutions: Lee R. Witty, B. M. Engelhard, J. N. Bos, J. A. Shearer and P A. Stewart.

Uniform Classification: C. H. Stebbins, W. F. Bradley, P. M. Lewis, Joseph Hoch, H. C. Cary and C. B. Shefler.

Transportation: P. M. Lewis, E. S. Davis, W. F. Bradley and R. Snoddy.

Co-operation: R. Snoddy, W. C. Jones and H. C. Cary.

The chairman suggested that the various committees get together and report the following day.

Mr. Renwick: I think we have had some very good speeches and we would like to hear from some of the others.

Mr. Brand: I think the keynotes have already been sounded. It seems to me that if we are going to profit our profit will be first from acquaintance. That will be helpful to take off the rough edges of competition. When a man calls up whom we have met socially and requests some information, or wishes to transact some business with us, it will do away with the hard feelings that we might otherwise be up against. A feeling of friendship in so far as acquaintance is concerned will lead to cooperation and cooperation is what we want more than anything else. Cooperation in grades and materials; cooperation in qualities; cooperation in the handling of freight rates. These are the questions coming up all the time, and in which we are most vitally interested. These points regulate our cost and the prices which we get, and we are interested in the price we get and the money we can make out of the business. We are interested in the price we want to get for our quality and grades and the keeping down of the freight rates, so as to give us our profit. Uniformity of grade in all those things will come in all right in a national organization. It may not help us as many think to start locally. There would be some advantage to be gained by forming local organizations, as we could adopt uniform grades, gather data and present facts to the railroads for reasonable rates on our product. This data should be gathered by the national association and be on hand for those who call for same at any time. In that we will be benefited, as the railroads do not do anything unless facts are presented to them. In this respect a national organization will help. Then, as I take it, this national organization which has been projected and upon which we are now working, will probably be the father of local organizations, and local organizations will be the direct help to all those who are in the sand and gravel business. This will be the one institution to which we can refer to gather facts, and we will be benefited for many incidental conditions which may come up in handling the trade. I think the keynotes have been well sounded, and what we want to do now is to get busy and perfect our organization and work out lines for helpful cooperation to all those in the business.

General Discussion.

P. A. Stewart, Kickapoo Sand & Gravel Co., Attica, Ind.: I came up here yesterday thinking that it might be something interesting, and since I landed here I am convinced that it is something I am very much interested in, and in favor of, and believe we should all get busy. I am very much in favor of the organization for mainly getting together on the railroad rate question, which I think is the most important item to consider. Next to that I place the classification of the material, so that we can adopt certain grades and reduce our scrap piles, which will put a stop to our having to place a screen and after running it for some time throw it away, because another size has been insisted upon or specified.

J. C. James, Milwaukee, Wis.: I am very much interested in being here. The views expressed here are not altogether the same as we find conditions in Wisconsin, although people are glad to get gravel up there of most any kind, and we have not any architects there who call for certain screened materials, etc. I am not a shipper, so I do not know that my views will be of much value to those present. However, I am glad to be present.

G. W. Bunker, Grand Rapids, Mich.: I have not heard anything about the educational part of this proposed association. It strikes me that the education that we will get from meeting together here will be of more value to us than any other one thing. This is a new business. The stone business has had its own way all these years; now we are beginning. As far as I know there are no colleges who have a chair devoted to the sand and gravel business. The machinery men are among the best sources of information we have. Our only recourse is to get out and see what the other fellow is doing, and it seems to me that if we are interested enough in going around to see what the other fellow does we will get some benefit. The making of a permanent organization of this nature, which in a way will tell us what the other fellow does, will benefit all those in the sand and gravel business. For myself, the best money I spend in a year is the time I spend visiting the other fellow's plant and getting pointers from him.

It seems to me above all things that this is an educational institution, and it is something which we cannot fail to get some good from. I would like to meet all of those present, and any time we can get together in our local organization, or in the national organization, we are going to get some good out of it. This is a sort of a college for our business, and we cannot fail to get good from it.

Mr. Bradley: Now, long before cement was thought of seriously in this country, we were making mouldings and castings, and it occurs to me that we should hear from the moulding sand men. So far as I know of the moulding sand business, it has not been nearly so progressive as other lines. There are different grades of sand which they dig out. Find out where they have made any attempt to come to some kind of a standard. If we can get the moulding men to say

C. H. BRAND, CHICAGO, TREASURER.

something I think we will cover the whole sand proposition."

C. B. Shefler, Garden City Sand Company: "We have handled moulding sand for twenty-five years. We ship some from New York, Wisconsin, Michigan, Indiana and Illinois to all parts of the country. We pay $3.50 per ton from New York, and it costs us 60 cents per ton on the cars at New York state points; so you can see that the freight is one of the largest items. The moulding sand people are a great deal like the sand and gravel people. They have all kinds of prices and sand. Moulding sand is all sold by the ton, which is one advantage, and we can buy it by the ton. It is entirely different from the other grades of sand."

J. T. Ballou, Ballou White Sand Company, Millington, Ill.: "We do not crush sand; we simply pass it over screens and in some manner get into one size. There are a good many different grades, but it would not come under the head of moulding sand."

Benefit to Business.

Mr. Defebaugh: We have come to accomplish something. Let us spend as much of the time as we can together. It has been a long time since we have had so many sand and gravel men together; in fact, I might say that never in the history of the sand and gravel business have we had so many on hand at one time. I want to see when you leave here tomorrow that it has been a good thing to have been here and that you have accomplished what you have been thinking about and believing in for a good many years. This meeting was called at this time of the year because sand and gravel people are not as busy as at other times. If we are in earnest about this organization let us think seriously about it. We want to have an organization which will benefit your business; which will twelve months from now show an increased profit in your business. I do not see why those interested in the silica and sand line cannot get together and form an association of the silica people. I will help any branch of the business or local organization I can to get together on good lines, but one thing I am going to hope for and suggest to you is that every man become a member of the national association, because that will bring you all together once a year, and the national association will help you to get together to form local organizations to work out freight problems of classificatin of our goods.

There are many features of your business as demonstrated in your talks here today that need ironing out. That is what an association is for, and I hope you will stick around, so that we can plan to work out on better lines than ever before the conditions confronting each one of you. We have an application blank for those who would like to join the association, and I would like to see every man present sign it.

After some further discussion on this question it was decided by a rising vote that the membership fees should be $15.

THE BANQUET.

In the evening after all the committees had prepared their reports the members of the newly born association assembled in the Auditorium banquet hall to break bread. The real thing, the essence of the association idea, is found around the dining table. And so the new association was christened in this way. There were songs by professional entertainers, and the banqueters were provided with song books, from which they once in a while, between mouthfuls, joined in the choruses. You would get the impression from the tone of the whole affair that it was more like a family reunion than the gathering of tradesmen—that was the intention.

When the singing had subsided and the company had risen and sung "America" the talkfest came on. Mr. Defebaugh presided and called on each one for a speech. None escaped.

W. C. Jones made a neat little speech. "We are apt to be frightened at competitors we never see," he said. "And I have noticed that if we meet them and look them in the face we find them all pretty good fellows, and, while competitors to some extent, in a business way they are friends always."

And then the meeting ran along, the leader calling on this one and that one to give testimony just as they do in a Methodist class meeting. H. P. Robbins confessed that he came out of Indiana, and said he would do all he could to push the association along.

"I do not say that I found it much easier in the sand business than in the newspaper business," said T. C. Anderson. "I know that in the newspaper business I found thinks kind of easy." [He was interrupted temporarily by the secretary, who fell out of his chair.] "I am heartily in favor of this movement and will do all I can for it."

"I think this meeting has brought us together so that we will understand each other," said Mr. Bradley, "and by meeting frequently and talking over conditions we will derive some benefit from it."

Then R. Snoddy added much to the affair by a little talk telling of his experiences.

There is one thing I would like to say, said Mr. Defebaugh. There are too few business men who are taking an interest in politics. At Washington and our state capitals everybody is represented but the business man. Every Congressman and every Senator is afraid to vote nay on any legislation which might affect the farmer and the labor element. The labor lobby is always present. The business people, employing more capital than the money involved in harvesting all our grain, are not represented at Washington except here and there. There was a meeting in town this week of the National Business League. They have been in existence nine or ten years, but interest in the league has been small. At their meeting excellent addresses were given on the subject of business and legislation. Some of the addresses had many good points, and I noticed in the hall only fifty business men. I think it is deplorable that when some of the best speakers in this country come to Chicago to attend a meeting there are only fifty business men present. There was a splendid address on the subject of the necessity of a merchant marine to represent this country. If I am correct, I think it was said England had 850 ships, and the great United States of America 11. Gentlemen, we are going to have a canal soon that will connect us with all parts of the world, and have only 11 ships of our own country to connect us with the lumbermen on the North Pacific coast, to England, the great coast line of South America to the west and the people of the Far East, and what are we going to do for ships?

Now, another thing. It seems to me that in our own community and in our own industry that we must pay more attention to the great questions of the day; we must try and influence conditions, so that another Los Angeles affair can never happen. Any man who employs labor today knows the lack of interest, knows that the men who draw salaries, as a general proposition, do not take an interest in the business as a whole that they are connected with. Either we are all wrong, or else this lack of interest in commercial life is going to some day destroy a wonderful future, because we have all the natural resources, all the business acumen, all the business initiative in America, but we need to take more interest in our affairs and in our state. This is a subject which you would do well to bring up in your meetings. It is my opinion that the only way to correct the conditions as they are going is by all of us taking an interest in everything

that affects our business. You know you cannot pick up a paper today without reading of some fellow who has a new idea, and even staid old papers of the old regime need the circulation so bad that some of them truck to the worst element in America socially. I do not say this with any but the kindliest feeling.

As we come together in these meetings let us do our part, so that any influence for good in this country will have our support and will not die for lack of our support. That is what you will come up against in a few years, and while I have the greatest faith in the American people standing shoulder to shoulder when the time comes when they need that cooperation, yet the lack of interest shown by the business people today is clogging the wheels of progress and preventing us from taking the position which we ought to occupy.

There is another thing which is going on in association work which is a good one. Every time the President makes a speech he mentions the lumberman. I have been associated with the lumber business for twenty-five years. The man who was not afraid of the cars bought timber, and in order to do so mortgaged his home and everything else he could in order to get hold of some land. Values have increased ten and thirty fold. What I am getting at is this: It seems to me that the lumber man, the sand man, the butcher and the baker must get closer together to protect the community they live in. Take these big stores here like Montgomery Ward & Co. and concerns of that character. They take $50,000 a year out of some towns in Iowa, Michigan, Wisconsin and other states. Now I have no objection to any business men succeeding, but is not the little man who has an investment entitled to make a fair profit in his business? It seems to me that the present method of encouraging the mail order business is going to disturb our country relations.

G. W. Bunker was the last speaker. Among other things he said:

We are all feeling our way in the dark, and the work we have before us is one that needs not only the full powers that each one of us have, but it needs the cooperation of all of us. The most of us think we are sufficient unto ourselves, but I seldom go away from home without getting some information that I did not know before leaving home. Two-thirds of the time I get the best of it from the man who is at the levers or possibly handling the shovel. When I go away from home and go to the other fellow's plant and sidle up to the laboring man I can get some good ideas from him and make him think he is the whole works.

There is always a grain of truth in everything we get. In everyday life we find that the man who is right down with the hoe has a whole lot of things that we need, notwithstanding our higher education, and when you have a perfect theoretical idea of something before you, before you try it out and invest money in it make an experiment of some sort and ask the man who has tried it out what he thinks of it. If we can get together frequently and in our own locality we can get together oftener than once a year and exchange some of the ideas we have, we will find that it will do us a great deal of good, and all these meetings will help us in our work and in taking care of the various kinds of material. The English language is a peculiar proposition; what is slang today, tomorrow is classic. The same is true of our business. If you have a light do not hide it under a bushel. Don't think by keeping it you can make anything of it. It is true that if you tell what you know someone is going to tell you something to repay you for telling it. It seems to me that we cannot do a better thing than this we have started on.

And then the Sand Man came.

SATURDAY'S SESSION.

The chairman opened the proceedings. It was moved and seconded that the report of the committee on resolutions be received and spread upon the records. Motion carried.

Report of the Committee on Resolutions.

Resolved, That it is the sense of this committee that the need of co-operation is responsible for the meeting of the representatives here today to bring out all the good features of the material we produce and emphasize the service rendered in being prepared to deliver promptly materials that are a large factor in the structural business of the United States; and be it further

Resolved, That it is the sense of this committee that the membership of this organization is intended to cover producers of moulding, silica, glass, bank, torpedo, building engine sand, and all grades of sand and gravel; and be it further

Resolved, That a special effort be made to secure the membership and co-operation of all producers in this country that in annual conclave we may be able to consider all phases of the business and outline plans for a larger market on good business lines; and be it further

Resolved, That at all annual meetings of this association that papers be prepared and given on subjects covering the operations and marketing of our product, discussion of freight rates, legislation, building laws and requirements of railroad and industrial companies; and be it further

Resolved, That it is the sense of this committee that we encourage and foster local organizations in all sections, these organizations to advance the local interests of the producers to conserve their raw materials and secure such railroad legislation as will advance and protect their interests in said local community; and be it further

Resolved, That each member will take upon himself the burden of encouraging all producers of sand and gravel, to become members of and affiliate with this organization; and be it further

Resolved, That we shall encourage and promote social relationship between the members of this association, believing that in meeting on common ground and in the free expression of the many situations which confront each one of us there can be promoted the highest and best ideals of this association, and in connection with this thought we offer as a suggestion that at each annual meeting the executive committee shall arrange for an annual dinner; and be it further

Resolved, That this convention in meeting assembled desires to express its thanks to ROCK PRODUCTS for their delightful entertainment, and all their labors, which have been so ably manifested in bringing together such a representative meeting. We trust that ROCK PRODUCTS will always have reason to feel proud of having been the father of this association.

The Constitution.

The report of the committee on constitution and by-laws as finally adopted was then read:

Article 1. Name—This association shall be known as the National Association of Sand and Gravel Producers.

Article 2. Object—The object of this association shall be to establish and maintain mutual confidence, reciprocity and good will among producers of sand and gravel, to promote uniform customs, practices and usages among producers, and to gather and disseminate among its members such information as may be of value to them.

Article 3. Membership—There shall be three classes of members: Active, Associate and Honorary. The active membership of this association shall consist of individuals, firms or corporations in America engaged in the production of sand and gravel.

The associate membership shall consist of individuals, firms and corporations engaged in the sale or manufacture of machinery and supplies used in connection with the sand and gravel industry, and others upon such terms and conditions as the Executive Committee may recommend.

The honorary membership shall consist of individuals upon whom from time to time the association may elect to bestow this recognition.

All applications for membership shall be made in writing to the secretary of the association.

The right to sit in executive session and to vote shall be accorded to active members only.

Article 4. Officers—The officers of this association shall be a president, vice president, secretary and treasurer, who shall be elected annually to serve until their successors are elected and qualified.

The President, together with the Vice President, Secretary and Treasurer, shall form part of the Executive Committee of ten members. The other six members of the Executive Committee shall be elected for a term of two years, to serve until their successors are elected and qualified. It is provided, however, that three of the first six to be elected shall serve a term of two years, and three shall serve a term of one year.

W. FRANK BRADLEY, PRESIDENT OHIO & MICHIGAN SAND & GRAVEL COMPANY, TOLEDO, O.

Article 5. Vacancies—In case of a vacancy in the Executive Committee or in any official position, the same shall be filled by the President for the unfinished term of such officer.

Article 6. Salaries and Expenses—All officers and directors of the association shall serve without compensation. The expenses incurred by the officers and committees of the association, in attending other than the regular meeting, and in carrying on the work of the association, shall be paid by the association, when approved by the Executive Committee.

Article 7. Meetings—There shall be one meeting of the association per annum. The exact date and place to be fixed by the Executive Committee; notice of such meeting to be mailed to the members of the Association at least thirty days prior to the holding thereof.

There shall be at least one meeting of the Executive Committee per annum, which shall be held just prior to the meeting of the association and at the same place.

Special meetings of the association for the Executive Committee may be called by the President at any time upon due notice.

When the President shall deem it inexpedient to call a special meeting of the association or Executive Committee, he may take a vote by mail on any question on which an expression is deemed necessary.

A majority of the members present at any regular or called meeting of the association, shall constitute a quorum.

Five members shall constitute a quorum of the Executive Committee.

Article 8. Dues—The membership fee and dues of this association for active and associate members shall be fifteen ($15.00) dollars for the first year. The annual dues for the second and succeeding years shall be fixed by resolution of the association at annual meetings.

Article 9. Amendments—These articles may be amended at any meeting of the association by a two-thirds vote of the members present and voted, and no amendment shall be considered at any meeting unless a written notice of the change proposed shall have been given to the Secretary at least thirty days previous to such meeting, and unless written notice of such proposed change shall have been mailed to members at least fifteen days prior to such meeting.

The next business of the meeting was the election of officers for the coming year.

Report of Nominating Committee.

The nominating committee made the following recommendations:

President: F. W. Renwick, Chicago Gravel Co., 343 S. Dearborn St., Chicago, Ill.

First vice-president: H. H. Halliday, Halliday Sand Co., Cairo, Ill.

Second vice-president: W. F. Bradley, Ohio & Michigan Sand & Gravel Co., Toledo, Ohio.

Third vice-president: H. F. Curtis, Lyman Sand Co., Omaha, Neb.

Fourth vice-president: Lee R. Witty, Wabash Sand & Gravel Co., Terre Haute, Ind.

Fifth vice-president: J. J. Neary, Utica Fire Sand Co., Utica, Ill.

Treasurer: C. H. Brand, Atwood-Davis Sand Co., Chicago, Ill.

Secretary: B. F. Lippold, ROCK PRODUCTS, 537 S. Dearborn street, Chicago, Ill.

Directors (for two years): C. H. Stebbins, N. C. Fisher, A. Y. Reed. For one year: P. A. Stewart, T. E. McGrath and G. W. Bunker.

Mr. Renwick: In reference to the report of the committee on nominations, personally speaking of the office of president I will say that I might admire their sentiment and question their judgment. We have considerable good material in this organization, and the chair would be very glad to hear nominations from any other source for president. I suppose the other officers are subject to change. It is up to your pleasure to choose what you like.

It was moved by Mr. Engelhard and seconded by Mr. Rogers that the report of the nomination committee as read by the secretary be approved as read and the secretary be instructed to cast one ballot for the officers as named. It was so ordered.

Mr. Stewart: I move that the transportation committee be left as an appointment committee by the president. So ordered.

Mr. Jones: I would like to move the following resolution:

Whereas, ROCK PRODUCTS maintains a department devoted to the sand and gravel industry and has been influential in promoting the formation of this association; be it

Resolved, That it is the sense of this association in convention assembled, that ROCK PRODUCTS be, and the same is hereby declared the "Official Organ" of this association, and all the charter members and those who may hereafter become members are urged to subscribe for it as the family paper of the sand and gravel interests.

Resolved, that the thanks of this association are due to E. H. Defebaugh, publisher of ROCK PRODUCTS, for his foresight, wisdom, enthusiasm and unselfish devotion to our cause.

Mr. Renwick: I am glad this resolution has been offered to Mr. Defebaugh on account of the work he has done for us.

Moved and seconded that the resolution as read be adopted and spread upon the minutes of the meeting. It was so ordered.

Mr. Defebaugh's Response.

Mr. Defebaugh: I thank you for the courtesy. I am sure ROCK PRODUCTS covers the sand and gravel business. It has always been at the service of the industry for doing any special work that will aid its friends to make money out of their business. We feel they invest money and time in their business just as I do in mine, and we all expect to make a fair profit. I believe if a man gives quality and gives service, he should be paid in proportion to that service, and we believe in practicing what we preach. If a man comes to advertise in ROCK PRODUCTS we charge him more than anybody else, but our prices are higher than the other papers only because our paper is better and has a wider influence. I hope the gravel people will feel that way and get the price, and I hope to see a lot of you make our office your headquarters when in town.

This association will be responsible for your making all the money possible in 1912. You do not have to violate the Sherman law to do it. You have got to use that same sand which you produce and get your backbone full of it. Look every man straight in the eye and tell him that you are giving him the best sand in the world and that he must come across and pay the price for it. We are working for you. Why should we not get a profit on it?

Classification Committee.

The secretary read the report of the committee on classification, as follows:

We recommend the adoption of the following sizes to be designated by the numbers given as being the standard classification:

Specifications for Sand and Gravel.

No. 9 gravel, 2 inches to 1¼ inches.
No. 8 gravel, 1¼ inches to ⅜ inch.
No. 7 gravel, 2 inches to ⅜ inch.
No. 5 gravel, ⅜ inch to ¼ inch.
No. 4 gravel, ¼ inches to 3-32 inch.
No. 2 sand, ¼ inch down.
No. 1 sand, 3-32 inch down.

3,000 pounds railroad weights to constitute a cubic yard.

Mr. Bradley: We talked with some of the white sand men and they want to have some meeting among themselves to make the same recommendation. I have had an opportunity to look into the matter of moulding sand. The Geological Survey of New Jersey have gone into the question of moulding sand, largely, and have made some tests, with an idea of developing some standards on moulding sand, and I think if the men who are interested will get that report from the Geological Survey of the State of New Jersey they will benefit by reading it. The people down in Jersey get considerable sand in that territory, and some of the officers did not think it was necessary to go to New York, and I think if people will look around a little they will be able to develop moulding sand closer to Chicago than New York state.

That report is more applicable to Chicago than in our territory, and I thought a little later on we might modify in some degree that report. There is nothing mentioned about the finer grades of sand to pass through 60-mesh and be retained on 80-mesh screens. As to classifications we will develop some standards when we find just what the trade requires.

Mr. Stewart: I would like to say in regard to that report, the actual weight of screened gravel is under 2,700 pounds, and after a year's argument I have succeeded in getting the railroads to embody that in their tariff.

In Chicago Market.

Mr. Brand: There has been quite a little discussion at this meeting about the way the material is billed, how sold, and we are to take in all of the sand products—silica, moulding, bank and all of it. I know it is a little out of the ordinary for the Chicago market and outside of quoting a yard price for the Chicago market. If we could change it here and for the country at large, I think it would be better to get on a basis of selling sand and gravel by the ton. I suggest this for consideration by this association. I hardly think it would be wise, in my opinion, to adopt such a resolution as this on grades until we have some more information on the subject. But if we could quote by the ton it could be worked out with a little trouble, and ultimately it would be to our benefit and to the benefit of handling the railroad proposition by the ton. They sell moulding, silica and glass sand by the ton, and the weights on bank sand and torpedo sand, or these grades of sand recommended by the committee is different, so we have these different weights to contend with all the time. In our territory we figure 2,700 to 2,800 pounds to the cubic yard on torpedo sand; bank sand, 2,500 pounds. Is it worth our consideration or while to change the quotations and make them by the ton instead of the yard?

Mr. Renwick: I think this is one of the opportunities for the association to do good by adopting the ton basis. The stone people have adopted this plan. This report that was made by the classification committee on sizes I think was more as a protection against various calls for different sizes, which necessitated using various sizes of machinery which were not standard, and I think it is important that we adopt some standard specifications in size, even if the weight is left out for the present.

Mr. Bradley: It might not be wise to adopt this at the present time, or leave the weight proposition out. I have sold gravel by measurement and put all one size in one car, and it bulked up. When you come to the weight of gravel and measure it up, it depends what the sizes are. If you have a stock pile it is better to send them one size if you can, because they bulk it better. It might be wise to let the whole thing rest for something to crystallize.

Mr. Stebbins: Those specifications were based on local conditions.

Mr. Jones: At Lincoln we sell nothing except by the ton.

Mr. Renwick: It might be that by individual effort on the part of the people something could be done. I think it would be a very good plan if the members of this association would take some action on this tonnage basis, and it might be that it would work out to a considerable extent.

Mr. Lewis: The committee appreciates that the classification we have offered there is practically a local classification, and the argument was made that it would be very hard to offer a classification that could be used universally on account of the various conditions differing in all parts of the country, and in order to get away from this we used the classification adopted in this territory for a long time. We all know that 3,000 pounds may or may not be the weight of a cubic yard measurement, and it seems to me that the classification business is something that needs a great deal of study and ought to be gone into thoroughly before deciding finally on the classification; also as to weight.

Mr. Renwick: How would it be to table this report, with a recommendation that this particular sand and gravel classification proposition be studied and thought about? It is an educational process in some localities, and after it has been worked on for a year we might have something definite to go on.

Mr. Lewis: In reference to changing the method of selling sand and gravel from a yardage to a tonnage basis, I think we will all admit that the change would be a good one. If we give it more thought, time and study I would not be surprised if we could sell by this method and adopt a universal plan of 2,000 pounds to a ton.

Mr. Stewart: I move that the report of the committee on classification be tabled, and reconsidered at the annual meeting, with the understanding that those sizes are recommended as general, and the weight proposition be disregarded.

Mr. Bradley: I think the silica sand people are not prepared to say anything at this time, but that they would later on, and think that tabling

LEE R. WITTY, WABASH SAND & GRAVEL COMPANY, TERRE HAUTE, IND.

this report is a good plan, as the committee could hear from them, also from the moulding sand men, in the meantime.

Mr. Lewis: It seems to me that a new committee ought to be appointed as members of that committee, so as to have the different sorts of sand represented, to make standard specifications to cover all sorts of material.

Two Names Added.

Mr. Renwick: The motion before the house is for the tabling of the report and authorizing the president to add to the committee now in force, who will investigate and be able to make such report as they can at the next meeting.

Motion carried.

The president then added the following names to the classification committee: H. C. Cary and C. B. Shefler.

Moved and seconded that the complete proceedings as reported of this meeting be put up in a pamphlet book form and sent with a membership application to all of the sand and gravel producers that we are able to reach. Motion carried.

Mr. Lippold: I believe it would be a good idea if practicable to have some one of our members go to New York on the 29th and 30th of January, at which time there will be a meeting of the National Builders' Supply Association. In forming this association we found there was somewhat of an inducement for New York City as a meeting place, but finally decided upon Chicago. We believe there will be at this New York meeting of the National Builders' Supply Association some men who will be eligible for membership in this association and who are only waiting for an invitation to join. I would like to have some members along with me and present the report to those who are interested. We can reach quite a number of eastern producers, and next year we can probably arrange the meetings so that they will come at the same time as the other meeting, for the convenience of the members to attend both meetings at the same time. I would like to have suggestions along this line.

Mr. Renwick: I think our secretary will be a good press agent, and if there are any builders' supply men down there they will further the cause as much as they can. I might say on behalf of the treasurer of the association that A. Y. Reed bears the distinction of putting the first check in the pot, and suggest that the payments be made as soon as possible.

The meeting then adjourned.

The Attendance.

Jesse A. Shearer, Indiana Gravel Co., Indianapolis, Ind.
F. W. Renwick, Chicago Gravel Co., Joliet Sand & Gravel Co., Chicago, Ill.
R. A. Rogers, Interstate Sand & Gravel Co., Terre Haute, Ind.
H. L. McGurk, Interstate Sand & Gravel Co., Terre Haute, Ind.
E. L. Shaneberger, Interstate Sand & Gravel Co., Terre Haute, Ind.
E. P. Renwick, Chicago Gravel Co., Joliet Sand & Gravel Co., Chicago, Ill.
W. Frank Bradley, Ohio & Michigan Sand & Gravel Co., Toledo, Ohio.
Joseph Hoch, Wisconsin Lime & Cement Co., Chicago, Ill.
A. L. Tucker, T. L. Smith Co., Symons Bros., Milwaukee, Wis.
J. T. Ballou, Ballou White Sand Co., Millington, Ill.
R. Snoddy, Coon River Sand Co., Des Moines, Iowa.
C. H. Brand, Atwood-Davis Sand Co., Chicago, Ill.
P. A. Stewart, Kickapoo Sand & Gravel Co., Attica, Ind.
H. D. Conkey, Conkey Coal Co., Mendota, Ill.
L. E. Wagner, Conkey Coal Co., Mendota, Ill.
E. C. Theobald, Anderson Theobald Co., Vincennes, Ind.
Lee R. Witty, Wabash Sand & Gravel Co., Terre Haute, Ind.
H. F. Curtis, Lyman Sand Co., Omaha, Neb.
Thomas C. Anderson, United States Sand Co., Chicago, Ill.
W. D. Beers, Shoemaker & Casparis, Newcomerstown, Ohio.
J. J. Neary, Pres., Utica Fire Sand Co., Utica, Ill.
H. C. Cary, E. J. Reynolds & Co., Utica, Ill.
F. G. Moritz, Utica Fire Sand Co., Utica, Ill.
F. A. Lange, Utica Fire Sand Co., Utica, Ill.
C. A. Cary, E. J. Reynolds & Co., Utica, Ill.
Benj. M. Engelhard, United States Sand Co., Chicago, Ill.
H. P. Robbins, Webster Mfg. Co., Chicago, Ill.
H. B. Sauerman, Sauerman Bros., Chicago, Ill.
J. N. Bos, Chicago, Ill.
D. P. Cromwell, Shearer & Mayer, Indianapolis, Ind.
H. H. Halliday, Halliday Sand Co., Cairo, Ill.
D. H. Donovan, Indiana Sand & Gravel Co., Kickapoo, Ind.
E. H. Defebaugh, ROCK PRODUCTS, Chicago, Ill.
B. F. Lippold, ROCK PRODUCTS, Chicago, Ill.
C. D. Warner, ROCK PRODUCTS, Chicago, Ill.
D. Banfield, ROCK PRODUCTS, Chicago, Ill.
C. M. Powell, Universal Portland Cement Co., Chicago, Ill.
C. W. Boynton, Universal Portland Cement Co., Chicago, Ill.
A. E. Robinson, Universal Portland Cement Co., Chicago, Ill.
Peter Mayer, Shearer & Mayer, Indianapolis, Ind.
W. C. Jones, Lincoln Sand & Gravel Co., Lincoln, Neb.
A. Y. Reed, A. Y. Reed Gravel Co., Elgin, Ill.
Percy Sawyer, Waukesha, Wis.
D. B. Pierson, Stephens Adamson Mfg. Co., Aurora, Ill.
Raymond W. Dull, Raymond W. Dull & Co., Aurora, Ill.
C. H. Stebbins, Lake Shore Sand Co., Chicago, Ill.
G. W. Bunker, G. W. Bunker & Co., Grand Rapids, Mich.
C. B. Shefler, Garden City Sand Co., Chicago, Ill.
J. C. James Co., Milwaukee, Wis.
Frederick C. Thomas, H. B. Sackett Screen & Chute Co., Chicago, Ill.
N. C. Fisher, Garden City Sand Co., Chicago, Ill.
William Chambers, Garden City Sand Co., Chicago, Ill.
P. M. Lewis, American Sand & Gravel Co., Chicago, Ill.
John A. Sauerman, Sauerman Bros., Chicago, Ill.

The Waukegan, Ill., Sand and Gravel Company recently built a concrete ice house near its sand pit.

The Faxon Gravel and Chert Co., at Faxon, Tenn., has been purchased by Mr. Shively, of Newbern, and W. L. Troy, of Memphis.

The Builders Sand and Gravel Company, of Davenport, Iowa, has closed its operations for the season and taken its equipment into winter quarters.

The Commissioners' Court of McLennan County, Texas, has accepted the bid of Flanagan & Pritchett of Waco, Texas, for building a gravel road in what is known as the McGregor precinct and the contract has been let.

V. O. Johnson, formerly general manager of the Lincoln Sand and Gravel Company at Lincoln, Ill., has installed machinery in the Wabash gravel pit at Blue Mound, Ill., and in addition to loading gravel for ballast purposes for the Wabash railroad will do a general sand and gravel business.

STATISTICS

Issued By the Department of the Interior U. S. Geological Survey, Show Increase in Production.

The government statistics recently compiled by Ernest F. Burchard, of the Department of the Interior, U. S. Geological Survey, show the sand and gravel industry to be in a very healthy condition.

The total production of sand and gravel in the United States in 1910 was 69,410,436 short tons, valued at $21,037,630, as compared with 59,565,551 short tons, valued at $18,336,990, in 1909, a net increase in quantity of 9,844,885 short tons and in value of $2,700,640 over the production of 1909. The production of 1908 was exceeded by 32,194,392 short tons in quantity and by $7,767,598 in value. In the years 1909 and 1910 there was considerable activity in the building trades, especially in concrete construction work, consequently there were large increases in the consumption of sand and gravel for building purposes. The production grouped under "Other Sand" showed a decrease in 1910, which was partly due to the decrease in material reported as used in railroad ballast and in filling. The production of molding sand in 1910 amounted to 3,636,167 short tons, valued at $2,431,254, as compared with 3,122,806 short tons, valued at $2,146,220, in 1909, an increase in quantity of 513,361 tons and in value of $285,034.

The production of glass sand in 1910 was 1,461,089 short tons, valued at $1,516,711, as compared with 1,104,451 short tons, valued at $1,163,375, in 1909. These figures represent an increase in quantity of 356,638 tons and in value of $353,336. The average value of glass sand per ton was slightly less than $1.04 in 1910, as compared with $1.05, the average value in 1909. The average value of molding sand per short ton in 1910 was a little less than 70 cents and of fire sand slightly under 77 cents per short ton. The other grades of sand bring much lower prices, the average ranging from about 28 cents per ton in the case of sand for filling, stone sawing, etc., to more than 56 cents for furnace sand. The average value of building sand was about 30 cents per short ton. The average value per ton for gravel in 1910 was less than 23 cents, a decrease of nearly 3 cents per ton since 1909. The gravel figures include, under Missouri, 1,901,382 tons of "chats," or tailings from the zinc mines of Flat River-Bonneterre and Joplin districts, and, under Alabama and Tennessee, a considerable quantity of chert, which is used for the improvement of roads.

The following tables give the production of the various grades of sand and the production of gravel by states in 1909 and 1910:

The unit of measurement given in the foregoing table of production is the short ton. Much of the sand is reported as sold by the cubic yard, a cubic yard varying in weight from 2,300 to 3,000 pounds, according to the condition of the sand, according to the material of which the gravel is composed, and according to the custom of the locality. All of the glass sand is sold by the short ton, and also a considerable quantity of the molding, building and other sand; hence, the quantities reported were all reduced to this unit.

The following table gives the total production of sand and gravel in the United States in each of the last nine years:

Quantity and value of sand and gravel produced in the United States, 1902-1910, in short tons.

Years—	——Sand and gravel—— Quantity.	Value.
1902	1,847,901	*$1,423,614
1903	2,110,660	* 1,331,210
1904	10,679,728	* 5,748,099
1905	23,204,967	11,223,645
1906	32,932,002	12,698,208
1907	41,851,918	14,492,069
1908	37,216,044	13,270,032
1909	59,565,551	18,336,990
1910	69,410,436	21,037,630

*Includes only a very small quantity of gravel.

The following table gives the total production of glass sand in the United States in each of the last nine years:

Quantity and value of glass sand produced in the United States, 1902-1910, in short tons.

Years—	——Glass sand—— Quantity.	Value.
1902	943,135	$807,797
1903	823,044	855,828
1904	858,719	796,492
1905	1,060,334	1,107,730
1906	1,089,430	1,208,788
1907	1,187,296	1,250,067
1908	1,093,553	1,134,599
1909	1,104,000	1,163,375
1910	1,461,089	1,516,711

The Cronister Sand & Supply Co. has been incorporated for $85,000 at Wilmington, Del. The incorporators are F. L. Mettler, J. A. Sheldon and W. L. Missimer.

The Crystal Silica Company, of Chicago, Ill., has been incorporated with a capital stock of $1,000, to do a general contracting, quarrying and merchandise business. The incorporators are: A. Volney Foster, Ralph E. Hyatt and D. Serf.

Schedules in bankruptcy of Cornelius J. Gallagher, dealer in sand and gravel, at No. 308 East Thirty-fifth street, New York, N. Y., show liabilities of $60,956 and assets of $12,458. The largest creditors are John Gallagher, $25,513, money due on sale of the business to Cornelius J. Gallagher and loans, and Gallagher Bros., $19,958 for merchandise.

Production of glass sand, other sand, and gravel in the United States in 1909 and 1910, by States and uses, in short tons.

1909.

State.	Glass sand. Quantity.	Glass sand. Value.	Molding sand. Quantity.	Molding sand. Value.	Building sand. Quantity.	Building sand. Value.	Fire sand. Quantity.	Fire sand. Value.	Engine sand. Quantity.	Engine sand. Value.	Furnace sand. Quantity.	Furnace sand. Value.	Other sands. Quantity.	Other sands. Value.	Gravel. Quantity.	Gravel. Value.	Total. Quantity.	Total. Value.
Alabama	.....	.....	119,988	$37,236	169,507	$49,249	.....	.....	6,519	$1,993	100	$50	1,280	$450	314,322	$104,918	611,776	$214,396
Arizona	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	(a)	(a)
Arkansas	b 4,467	b $2,573	(c)	(c)	245,530	89,578	.....	.....	8,658	2,975	.....	.....	4,317	3,446	825,054	162,470	1,088,013	252,044
California	(d)	(d)	e 28,002	e 32,068	227,391	105,197	4,681	$3,745	27,317	5,348	.....	.....	12,327	7,313	914,035	169,476	1,213,953	323,146
Colorado	.....	.....	6,544	3,840	21,882	13,638	.....	.....	4,146	1,800	7,000	4,362	27,572	14,574	333,732	58,965	402,002	96,381
Connecticut	.....	.....	1,068	1,117	14,015	10,740	.....	.....	.....	.....	.....	.....	672	625	.....	.....	15,756	12,482
Delaware	.....	.....	94	50	58,204	29,102	.....	.....	14,924	5,671	60,661	35,146	5,954	8,954	.....	.....	139,733	78,923
Florida	.....	.....	588	717	34,190	13,562	.....	.....	.....	.....	.....	.....	1,048	110	17,788	14,212	43,566	28,611
Georgia	(d)	(d)	e 18,776	e 10,057	206,672	135,206	.....	.....	9,986	2,997	4,000	900	91,925	19,106	64,418	39,436	395,776	207,643
Hawaii	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	(a)	(a)
Idaho	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	(a)	(a)
Illinois	224,361	153,226	388,518	143,922	1,917,915	e 632,273	2,276	1,473	104,862	11,772	22,840	15,789	183,885	277,006	3,405,438	716,900	9,155,226	1,949,497
Indiana	(d)	(d)	e 142,864	e 93,021	1,265,724	372,408	100	75	28,275	7,790	59,800	13,684	1,184,668	97,995	1,795,773	332,536	4,467,104	937,502
Iowa	.....	.....	26,493	35,340	774,101	200,727	.....	.....	21,895	5,289	3,700	1,480	40,794	9,732	654,981	146,280	1,520,964	418,829
Kansas	.....	.....	.....	.....	931,388	181,242	.....	.....	2,906	484	.....	.....	37,041	2,001	16,493	4,377	977,918	188,708
Kentucky	(d)	(d)	e 42,258	e 33,587	308,812	218,560	430	212	8,953	4,423	13,546	7,716	12,638	10,150	389,314	158,853	765,991	433,453
Louisiana	.....	.....	.....	.....	130,274	64,163	.....	.....	4,852	691	.....	.....	76,360	19,168	440,464	218,862	651,146	302,619
Maine	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	(a)	(a)
Maryland	14,495	b 15,736	(c)	(c)	280,702	94,999	.....	.....	1,581	1,490	.....	.....	14,244	10,008	146,347	71,431	457,418	193,757
Massachusetts	(d)	(d)	e 24,190	e 29,572	178,510	90,196	4,000	2,000	.....	.....	.....	.....	11,300	9,677	113,468	74,652	331,468	205,697
Michigan	65,000	79,000	53,226	20,756	1,000,419	327,247	4,000	2,000	12,415	1,493	3,183	3,060	256,612	80,952	695,902	200,323	2,219,757	633,632
Minnesota	(d)	(d)	33,667	36,374	176,009	55,563	.....	.....	6,770	1,131	136	225	1,170	1,900	1,121,262	236,909	1,339,038	332,102
Mississippi	.....	.....	200	213	304,436	139,633	.....	.....	.....	.....	.....	.....	4,000	3,000	207,778	126,518	517,336	269,364
Missouri	98,480	73,080	70,136	38,378	1,867,734	440,021	4,649	1,160	44,167	11,577	29,925	18,120	280,136	63,317	1,933,001	353,470	4,328,232	1,001,331
Montana	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	(a)	(a)
Nebraska	.....	.....	.....	.....	558,801	97,424	.....	.....	7,395	751	.....	.....	210,672	18,243	9,340	3,484	786,208	119,902
Nevada	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	(a)	(a)
New Jersey	85,696	62,830	499,291	310,910	1,343,938	290,036	60,023	60,142	33,269	10,131	5,766	2,911	162,013	74,718	454,696	117,675	2,660,714	935,373
New Mexico	.....	.....	.....	.....	1,954	1,617	.....	.....	.....	.....	.....	.....	.....	.....	4,992	2,942	6,946	4,559
New York	(d)	(d)	e 477,121	e 423,172	3,986,875	885,918	23,136	12,436	21,193	10,702	.....	.....	67,188	29,157	1,824,102	464,929	6,399,615	1,826,414
North Carolina	.....	.....	400	232	15,500	4,933	.....	.....	.....	.....	.....	.....	73,272	8,141	.....	.....	89,181	13,358
Ohio	88,054	95,331	650,336	481,128	1,661,110	564,708	5,647	7,187	66,012	15,619	42,948	44,129	116,614	44,099	1,700,653	341,047	4,615,373	1,593,298
Oklahoma	.....	.....	.....	.....	441,556	130,040	.....	.....	10,620	1,560	.....	.....	22,874	6,250	206,785	47,962	681,785	185,812
Oregon	.....	.....	.....	.....	274,615	146,318	.....	.....	.....	.....	.....	.....	325,060	78,000	287,374	155,387	886,989	379,705
Pennsylvania	281,120	399,707	540,007	350,975	2,153,039	892,703	30,952	28,848	141,137	109,224	112,164	69,263	399,633	410,315	1,341,785	252,033	5,199,747	2,513,070
South Carolina	b 830	b $720	(c)	(c)	900	$360	.....	.....	.....	.....	.....	.....	398,004	$33,295	400	$400	300,134	$35,014
South Dakota	.....	.....	.....	.....	38,700	28,211	.....	.....	.....	.....	.....	.....	.....	.....	1,467,921	248,049	1,526,714	271,260
Tennessee	1,350	1,350	67,000	$34,021	306,134	167,864	270	$130	44,495	$13,380	10,502	$3,902	18,194	10,902	684,864	205,274	963,012	417,723
Texas	.....	.....	4,774	3,178	490,264	193,600	.....	.....	17,375	6,340	.....	.....	.....	.....	153,903	53,240	676,306	246,355
Utah	.....	.....	.....	.....	16,768	2,394	.....	.....	8,637	1,909	.....	.....	13	15	1,145,648	136,147	1,197,751	154,039
Vermont	.....	.....	298	779	12,960	11,926	.....	.....	72	.....	.....	.....	412	72	.....	.....	16,676	12,775
Virginia	.....	.....	1,000	600	72,797	29,721	.....	.....	10,141	5,009	74,208	31,539	.....	.....	.....	.....	164,656	66,869
Washington	.....	.....	700	705	24,063	21,127	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	34,858	21,912
West Virginia	(d)	(d)	e 42,358	e 19,341	237,752	78,008	.....	.....	6,800	1,700	.....	.....	40,397	11,009	25,078	13,975	352,479	123,143
Wisconsin	169,731	205,162	2,248	1,069	135,537	84,709	.....	.....	.....	.....	.....	.....	672	756	16,200	12,000	32,675	24,450
Wyoming	(d)	(d)	e 84,381	e 62,915	479,808	162,610	1,000	750	32,244	5,057	473	355	200,215	38,158	719,312	122,427	1,517,433	414,269
Other States /	.....	.....	.....	.....	532	266	.....	.....	.....	.....	.....	.....	.....	.....	198,867	15,524	199,399	15,879
Total	b 1,089,872	b 1,089,572	3,195,625	2,220,023	23,114,199	7,238,814	131,230	120,778	726,409	260,150	431,362	227,581	4,632,340	1,448,196	23,262,904	5,719,886	59,565,551	18,336,990

a Included in other States.
b Includes molding sand.
c Included in glass sand.
d Included in molding sand.
e Includes glass sand.
/ Includes Arizona, Hawaii, Idaho, Maine, Montana, Nevada, and North Dakota.
The exact output of glass sand was 1,104,451 tons, valued at $1,163,375.
& The exact output of molding sand was 3,122,806 tons, valued at $2,146,220.
‡ Includes sand for grinding and polishing stone and glass, sand for filtration plants, sand for railroad filling and ballast, for molding brick, for making asphalt pavement and blocks, etc.

Production of glass sand, other sand, and gravel in the United States in 1909 and 1910, by States and uses, in short tons—Continued.

1910.

State.	Glass sand. Quantity.	Glass sand. Value.	Molding sand. Quantity.	Molding sand. Value.	Building sand. Quantity.	Building sand. Value.	Fire sand. Quantity.	Fire sand. Value.	Engine sand. Quantity.	Engine sand. Value.	Furnace sand. Quantity.	Furnace sand. Value.	Other sands. Quantity.	Other sands. Value.	Gravel. Quantity.	Gravel. Value.	Total. Quantity.	Total. Value.
Alabama	.....	.....	56,085	$22,008	220,797	$73,867	.....	.....	6,350	$1,930	280	$140	10,197	$3,547	311,938	$87,330	610,253	$187,391
Arizona	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	(a)	(a)
Arkansas	.....	.....	600	515	212,318	88,791	.....	.....	18,370	5,140	.....	.....	7,511	5,976	822,226	150,356	1,061,057	250,080
California	(b)	(b)	c 10,133	c 9,342	191,247	74,226	10,606	$8,093	25,679	6,949	.....	.....	22,288	14,828	1,605,267	337,572	2,065,287	440,960
Colorado	.....	.....	3,857	2,627	41,198	13,050	.....	.....	7,065	2,200	.....	.....	13	15	1,145,648	136,147	1,197,731	154,039
Connecticut	.....	.....	298	779	12,960	11,926	.....	.....	.....	.....	.....	.....	412	72	.....	.....	16,676	12,775
Delaware	.....	.....	1,000	600	72,797	29,721	.....	.....	10,141	5,009	74,208	31,539	.....	.....	.....	.....	164,656	66,869
Florida	.....	.....	700	705	24,063	21,127	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	34,858	21,912
Georgia	(b)	(b)	c 19,341	237,752	78,008	.....	.....	6,800	1,700	.....	.....	40,397	11,009	25,078	15,975	352,479	123,143
Hawaii	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	(a)	
Idaho	.....	.....	.....	.....	15,800	11,700	.....	.....	.....	.....	.....	.....	672	756	16,200	12,000	32,672	24,450
Illinois	208,654	$216,531	407,232	318,742	1,750,652	473,209	17,840	12,886	43,147	6,840	79,793	48,046	1,211,564	130,756	4,801,626	926,785	8,586,508	1,730,795
Indiana	(b)	(b)	c 165,357	c 85,204	1,828,023	410,046	.....	.....	28,902	9,213	67,068	13,400	221,419	26,825	4,107,702	500,474	6,418,468	1,045,162
Iowa	.....	.....	13,330	9,775	781,667	283,084	.....	.....	25,000	7,083	9,000	4,500	28,238	5,563	944,540	154,479	1,799,762	464,427
Kansas	.....	.....	.....	.....	699,540	142,514	.....	.....	24,524	3,772	.....	.....	37,344	4,217	168,339	15,155	929,747	165,659
Kentucky	(b)	(b)	c 57,318	c 43,799	363,179	186,054	2,782	1,952	8,104	3,300	12,016	9,335	26,062	7,836	265,891	134,123	737,352	386,446
Louisiana	.....	.....	.....	.....	208,956	66,236	.....	.....	4,653	779	.....	.....	35,535	6,827	586,149	298,473	835,293	372,336
Maine	.....	.....	.....	.....	41,500	40,313	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	41,500	40,313
Maryland	b 25,302	b 22,998	(c)	(c)	476,317	163,213	.....	.....	21,372	12,437	.....	.....	13,477	9,882	416,655	187,828	954,723	396,357
Massachusetts	(b)	(b)	c 13,198	c 23,626	91,267	4,144	1,405	.....	.....	.....	.....	.....	51,787	30,724	111,077	65,670	321,860	212,716
Michigan	(b)	(b)	c 110,024	c 89,679	1,151,588	334,330	5,000	3,000	22,270	2,172	3,183	4,034	372,860	57,395	1,197,791	304,841	2,862,736	816,337
Minnesota	.....	.....	33,098	36,427	176,855	62,470	100	100	9,628	1,511	.....	.....	23,444	9,846	1,704,725	246,780	1,938,112	347,138
Mississippi	.....	.....	250	146	70,932	30,734	.....	.....	9,407	2,564	.....	.....	1,400	1,400	281,041	124,569	363,121	159,413
Missouri	188,342	130,686	79,977	42,787	2,526,600	571,501	35,086	16,420	65,148	12,544	.....	.....	145,701	79,628	3,070,012	485,958	6,108,460	1,339,519
Montana	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	(a)	
Nebraska	.....	.....	.....	.....	604,762	139,541	.....	.....	9,091	1,321	.....	.....	170,748	18,644	94,409	18,649	1,078,992	198,255
New Jersey	87,680	61,078	679,191	439,460	1,421,332	340,258	28,931	22,362	20,798	9,666	14,757	9,249	171,886	111,382	528,252	138,922	2,952,815	1,139,275
New Mexico	.....	.....	.....	.....	250	207	.....	.....	.....	.....	.....	.....	2,760	690	1,387	1,185	4,310	2,082
New York	(b)	(b)	c 536,225	c 453,262	4,005,630	1,041,567	23,485	12,586	34,020	13,044	6,315	3,140	318,196	109,690	1,905,228	671,718	7,129,066	2,305,123
North Carolina	.....	.....	400	300	28,030	4,980	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	28,430	5,280
North Dakota	.....	.....	.....	.....	5,752	4,322	.....	.....	.....	.....	.....	.....	28,873	2,994	5,890	5,037	40,515	12,353
Ohio	139,122	104,286	734,313	533,343	2,062,108	713,220	11,474	8,576	63,023	19,366	94,955	85,052	420	180	9,710	6,730	15,980	11,228
Oklahoma	.....	.....	96	24	576,720	87,126	.....	.....	3,200	600	.....	.....	73,041	44,357	1,937,823	557,016	5,105,514	2,005,224
Oregon	.....	.....	.....	.....	494,068	209,878	.....	.....	7,000	800	.....	.....	62,256	19,204	307,771	79,788	659,220	186,977
Pennsylvania	434,147	617,206	605,340	413,741	2,245,658	941,227	32,052	26,719	229,233	150,659	105,194	58,673	601,539	388,886	1,423,347	337,006	5,676,800	2,974,221
South Carolina	b 2,144	b 1,993	(c)	(c)	2,138	900	.....	.....	.....	.....	.....	.....	300,000	80,000	.....	.....	304,282	82,893
South Dakota	.....	.....	.....	.....	80,225	32,606	.....	.....	2,205	294	.....	.....	925	825	786,345	124,613	849,800	157,738
Tennessee	1,529	1,344	48,139	24,429	376,016	187,540	540	300	26,237	12,731	9,271	4,723	18,997	6,842	304,802	179,077	735,432	417,991
Texas	.....	.....	4,196	2,646	480,657	227,649	150	200	22,290	13,286	112	84	27,054	9,469	471,723	262,773	1,006,386	517,225
Utah	.....	.....	.....	.....	2,850	723	.....	.....	13,888	4,187	.....	.....	120	345	168,928	16,219	185,894	21,354
Vermont	.....	.....	2,206	1,720	2,904	2,170	.....	.....	.....	.....	.....	.....	60,000	15,000	1,200	141	66,418	19,047
Virginia	(b)	(b)	c 36,217	c 25,494	251,170	98,340	.....	.....	1,900	1,165	5,338	2,088	22,494	10,628	447,201	87,791	764,321	215,416
Washington	.....	.....	4,076	7,577	568,846	176,103	.....	.....	950	855	.....	.....	5,136	2,052	976,287	295,327	1,575,289	481,559
West Virginia	235,784	282,267	3,341	2,461	231,535	87,109	.....	.....	47,777	20,280	11,500	3,300	53,982	13,879	161,122	56,116	745,241	474,461
Wisconsin	(b)	(b)	c 87,786	c 54,732	638,861	298,284	4 2,200	1,323	41,682	7,149	866	800	30,900	12,524	640,739	92,731	1,461,753	465,563
Other States /	.....	.....	.....	.....	14,416	6,271	.....	.....	.....	.....	.....	.....	24,240	10,754	24,321	1,136	63,183	24,191
Total	1,461,089	1,516,711	3,636,167	2,431,254	23,743,072	7,832,626	175,081	136,361	578,411	249,145	493,366	279,046	4,638,428	1,240,365	32,384,622	7,252,110	69,410,436	21,037,630

a Included in "Other States."
b Includes molding sand.
c Included in glass sand.
d Included in molding sand.
e Includes glass sand.
/ Includes Arizona, Hawaii, and Montana.
The exact output of glass sand was 1,461,089 tons, valued at $1,516,711.
& The exact output of molding sand was 3,636,167 tons, valued at $2,431,254.
‡ Includes sand for grinding and polishing stone and glass, filtration sand, railroad filling and ballast, brick molding, for asphalt paving and blocks, etc.

The Esson Sand and Gravel Company, of Chicago, Ill., has increased its capital stock from $25,000 to $50,000.

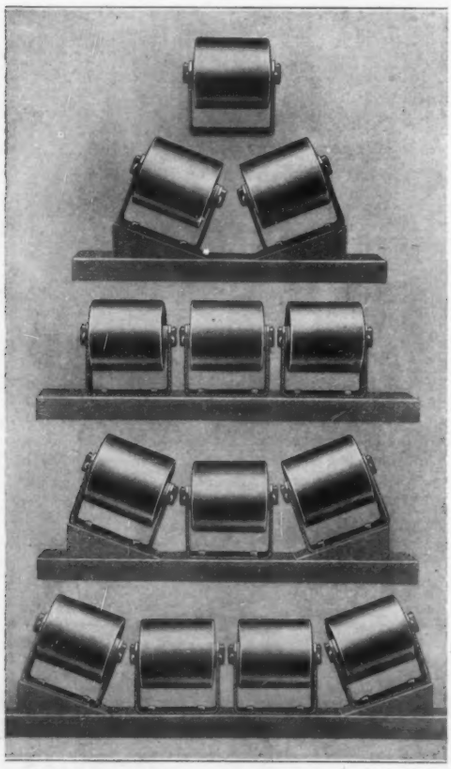
TENNESSEE SAND AND GRAVEL NEWS.

Memphis, Tenn., Nov. 16.—Since the good roads agitation is becoming so prominent in the country, gravel and novaculite, or more commonly chert, deposits are receiving much attention. Several companies of this character have offices in Memphis, Tenn., and in that section west of the Tennessee river, especially around Camden, Tenn., operations on a large scale have been carried forward. In the building of the Memphis to Bristol state highway, the route of which has already been designated by a state commission, it is probable that a great deal of chert will be used on the highway. The Good Roads Construction Co., Exchange building, Memphis, the Memphis Stone & Gravel Co. and the West Tennessee Gravel Co. are working on these propositions. Around Camden, Tenn., the chert is found to a depth of sixty feet. At that place it is a white or yellowish novaculite. ROCK PRODUCTS is enabled to give several good illustrations of the district, which has received official attention from the State Geological Survey of Tennessee.

UNIT CARRIERS.

A Distinct Advance in the Design and Construction of Belt Conveying Machinery.

Anything in the labor-saving line always appeals to a manufacturer. That is the slogan of the Stephens-Adamson Manufacturing Company, of Aurora, Ill.



"S-A" UNIT CARRIER.

This company makes the famous "S-A" unit carrier for belt conveyors. A distinct advance in belt conveyor design and construction is realized in the development of the unit carrier. The many advantages of handling material on belt conveyors have resulted, during the past decade, in the extensive adoption of this type of machinery for the mechanical handling of bulk and package products in various industries. Although a number of different makes of carriers are on the market, the same general plan is prevalent of providing one carrier for each size of belt. Such arrangement has proven satisfactory where the installation has been permanent, but under modern methods of business the question of growth and change must always be considered, and modern plants and mills are consequently designed to permit of this growth. The flexibility of the unit carrier allows for any such change with slight additional expense. On excavation and construction work and for all temporary as well as permanent installation the unit carrier provides an economical and efficient means of constructing in a short time a belt conveyor exactly fitted to the requirements.

The typical belt conveyor carrier of the old type is probably familiar to all engineers. The pulleys which support and trough the belt are supported by brackets which allow practically no variation either in width or in arrangement of the pulleys.

In the unit carrier the standard arrangement of pulleys is usually adhered to as most advantageous; the pulleys, however, are each supported by an individual bracket, and these brackets are fastened to a common support in any desired arrangement.

The support used for the pulley is a pressed steel plate. To this plate are bolted two malleable iron casings which act as grease pockets and as covers for the self-contained ball bearings. These bearings support the ends of the short steel shaft on which the pulley is mounted.

Experience has shown that the following features are necessary or desirable in a belt conveyor carrier, and it has been with these in mind that the unit carrier has developed:

Expansible—By the use of additional units a carrier of any width may be easily adapted to a conveyor of a larger size, and thus a required increase in capacity will not necessitate discarding the old carriers. This feature is very important, as few plants or mills are built today without provision being made for a future increase in capacity.

Adjustable—The great flexibility allowed by the unit system permits exact adjustment of the carrier to any desired condition. This is particularly noted in the possible variation from a flat carrier to one with troughing rolls inclined at an angle. The feature of individual supports for each roll allows the carrier to adjust itself to any settling of the framework or supporting structure.

One Type of Unit—The complete carrier is made up of similar units; the troughing and carrying rolls of the carrier are the same; and similar units are also used in making the return rollers. The standard units may even be used as guide rollers, although special guide rolls of similar diameter which are manufactured to fit the standard brackets are less expensive for the purpose.

Interchangeable—All parts entering into the construction of the unit carrier are made of castings and templates. All castings are made from patterns mounted on moulding machines, thus insuring castings of uniform shape and size. Repairs may be ordered with the positive assurance that they will fit.

Indestructible—As the brackets are formed of heavy steel plates, the carriers are practically indestructible. The short shafts with two supports for each roll provide greater strength than can be obtained in a carrier of any other type. This permits the roughest handling in shipment without injury, and allows the carrier to meet successfully the roughtest service to which conveying machinery may be subjected.

Shipping Advantages—In addition to the indestructible features, which admit the roughest handling in shipment, the weight of the carrier is also an important consideration in reducing freight charges. The weight of a unit carrier for a given size of conveyor varies from 25 per cent to 50 per cent less than the corresponding size in any other conveyor. This decrease in weight sacrifices no element of strength, but rather the feature of individual supports for each roll gives greater strength in spite of the added weight.

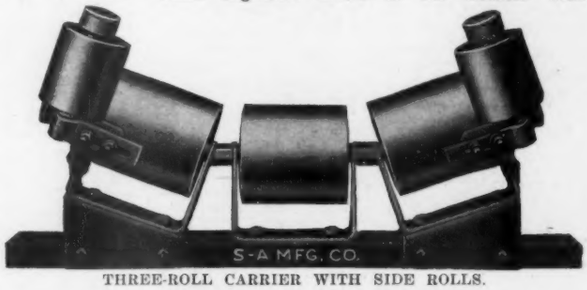
Lubrication—The shafts of the rolls are supported in ball bearings which consume the minimum amount of power. These are located in dustproof grease sufficient to lubricate the bearings for several months. Actual running tests for a period of over two months, under the severest possible conditions, show, up to the time of writing, practically no diminution of the supply of grease in the pockets. Indications are that under ordinary service these pockets will not have to be filled oftener than every six months or a year. The bearing is also absolutely tight, and there is no possibility of grease coming in contact with the belt.

Carried in Stock—A large supply of units will be carried in stock both at the factory and at various distributing points throughout the country. In this way there need be no delay whatever in obtaining at short notice a carrier suited to the exact requirements. This feature not only is valuable when new installations require immediate shipments, but also when changes and expansions necessitate additional units.

Advantages for Contractors—On construction work the unit carrier will be especially appreciated. Having the units carried in stock allows the contractor's needs to be met immediately at any time, and the equipment purchased will always be a permanent asset and an important addition to the contractor's equipment. The flexibility of this carrier will allow it to be adapted not only to the changing requirements of each individual job, but permits of its adaptation to every conveyor requirement.

The great flexibility allowed in this type of carrier construction is illustrated by the accompanying cuts. Conditions are constantly arising where a special carrier is demanded that cannot be supplied by any of the standard carriers on the market today; or if they can be supplied, the time required to make them up, special, causes most inconvenient delay and expense.

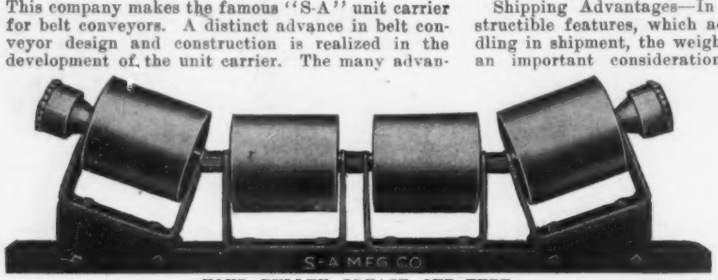
Some engineers desire to use carriers with troughers inclined at a very steep angle. This makes a deeper trough in the belt, and with some materials the capacity is thus increased. It is also sometimes desired to use high troughers below the chute which feeds the belt.



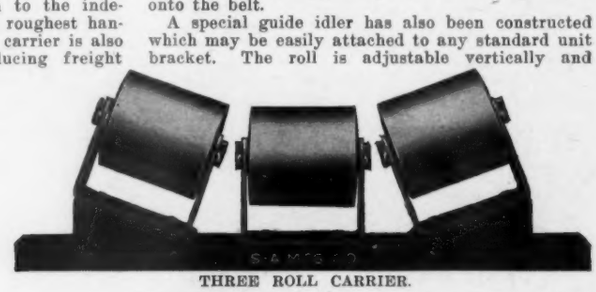
THREE-ROLL CARRIER WITH SIDE ROLLS.

Another application of the unit idea in carrier construction has been developed in the grease cup type of unit carrier. In this carrier the pulleys revolve on the shaft and direct lubrication is applied through hollow shafts to the hubs of the pulleys. Each unit consists of a hollow steel shaft carrying a loose pulley mounted on the steel plate bracket used in the ball bearing type. In assembling these units special pipe connections are placed between the shafts and a grease cup is attached to the outer end. This method of lubrication has certain advantages under special conditions. The connections are absolutely tight and, like the ball bearing unit, allow no grease to get onto the belt.

A special guide idler has also been constructed which may be easily attached to any standard unit bracket. The roll is adjustable vertically and horizontally. Although a standard unit of either type may serve as a guide idler in case of emergency, the special arrangement makes a neater appearance and is also more economical.



FOUR PULLEY GREASE CUP TYPE.



THREE ROLL CARRIER.

The Stephens-Adamson Manufacturing Company, of Aurora, Ill., have developed the unit system of carrier construction and they have taken the necessary steps to secure patents covering every application of this idea. The design and adaptation of the unit carrier to the ordinary conveyor problem is the result of years of study and consideration of the main problems to be met, and of months of experimental work in producing a carrier which should fill all the desired conditions.

This company has issued a special bulletin on the unit carrier giving a complete description with cuts of the same and giving tables with dimensions of the units assembled in various combinations for the standard widths of belts. This bulletin will be sent on request to all interested.

James B. Bernard, one of the oldest cement salesmen in point of years of service and for a number of years with the Edison Portland Cement Company, has joined the sales force of the Allentown Portland Cement Company. "Jimmie," as he is familiarly known to the trade, began in the business as office boy with the Atlas.

WASHING PLANT

Of the Palmyra Sand Company Presents an Unusual Arrangement Which Has Proven Highly Satisfactory.

The Palmyra Sand Company, of Palmyra, N. Y., has been operating its new sand and gravel washing plant since early last spring. As the arrangement is something unusual, we are showing working drawings and photographs of the plant. We have been furnished these drawings and photographs by Raymond W. Dull & Co., Aurora, Ill., who designed and furnished the machinery for the plant.

The plant is located about a mile east of Palmyra, on the old Barge Canal. It was built to furnish material for concrete work in connection with the new $100,000,000 Barge Canal through New York state, and only two sizes of material are used, viz., sand and gravel.

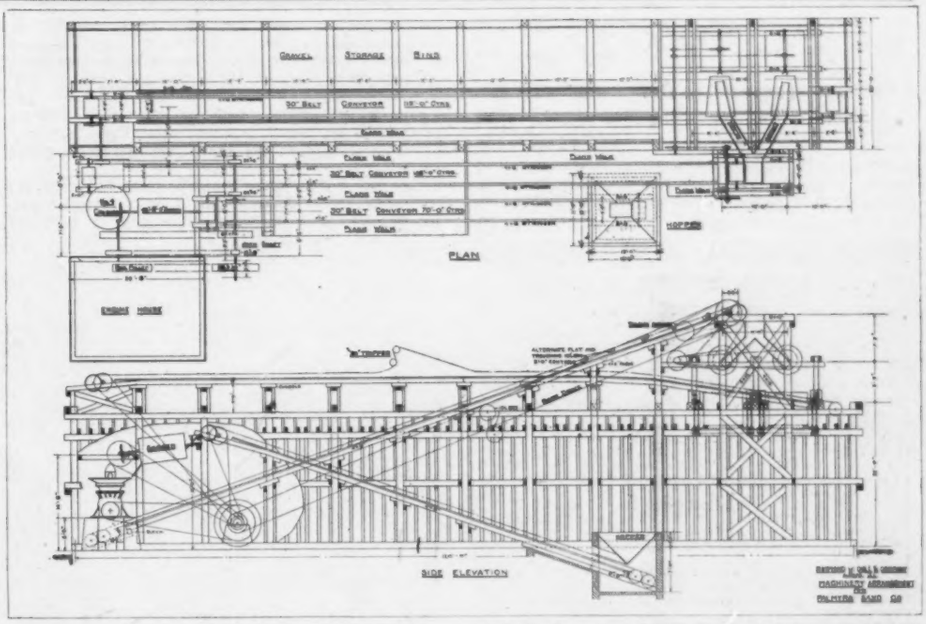
GENERAL VIEW OF THE PALMYRA SAND COMPANY, PALMYRA, N. Y.

The bins are on the canal bank, and a barge can be loaded very quickly by opening several gates at the same time, as the old canal can be used for transportation. The freight arrangement is very satisfactory.

The gravel bank is about 30 feet deep, and their present property adjacent to the plant consists of twenty acres. The overburden is very light, in many places less than a foot deep, and so far no stripping has been done, as the screens are so efficient that all loam is taken out and the material passes the inspection of the state engineers.

The capacity of the plant is 1,000 yards of material per day of ten hours. The gravel bin is very large and is 90 feet long.

The digging is done by a Thew steam shovel, and the material is brought to the plant in 4-yard side-dump cars, which dump into a hopper at the plant.



The material is delivered from the hopper into a 30" belt conveyor, which elevates the material sufficiently to deliver into a revolving screen over the crusher. This method permits crushing the material while it is dry, and makes it unnecessary to elevate the material twice, as is the case with most plants.

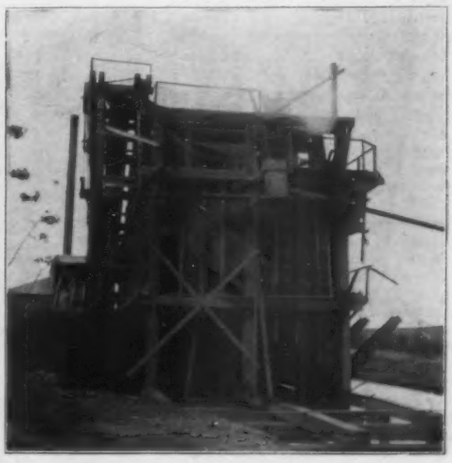
The material which passes through the screen, as well as the crushed stone, is delivered on to a second 30" belt conveyor, which elevates the material to the washing screens. The water is added at this point and the material is divided and washed by two improved quick-change washing screens. The gravel is delivered on to a 30" conveyor over the bins, which discharges it into the bins by means of a movable tripper running on a track like a car.

The sand and water go into two automatic settling tanks, which take out the sand automatically and deliver it into the bins beneath. The refuse and water are carried across the canal into low lands beyond.

VIEW OF PLANT ABOVE PIT, PALMYRA SAND COMPANY, PALMYRA, N. Y.

The belt conveyors are all equipped with pressed steel idler pulleys, and the crusher is a No. 5 Gates. Power is furnished by a 125-horsepower high-speed automatic cut-off engine and 160-horsepower boiler.

SHOWING MACHINERY ABOVE BINS AT THE PALMY RA SAND COMPANY'S PLANT, PALMYRA, N. Y.



SHOWING END OF BINS AND CANAL, PALMYRA SAND COMPANY, PALMYRA, N. Y.

CLAY

CLAY INDUSTRY

Showed on the Whole, Fair Progress During the Year 1910, According to Government Statistics Just Issued.

The following statistics, which were compiled by Jefferson Middleton, of the Department of the Interior, U. S. Geological Survey, show the condition of the clayworking industry to be in a very healthy state:

With the exception of the section on clay production, this report deals with the products of the clay-working industries, and hence the tables are made up to show the products of clay manufactured and not the production of clay.

The year 1910 in the clay-working industries was, on the whole, one of fair progress; the value of the products was the largest ever made, the total being $170,115,974, as compared with $166,321,213 in 1909, an increase of $3,794,761, or 2.28 per cent. The increase in 1909 over 1908 was the largest ever recorded, $33,123,451, or 24.87 per cent. This, however, was due to the recovery to normal conditions from the financial depression.

The greatest of all clay products in point of value and geographic distribution, common brick, showed the largest decrease, $2,031,564, or 3.55 per cent. This product in 1909 showed a large gain over 1908. Vitrified paving brick showed a decrease of $264,920, or 2.35 per cent.

Drain tile showed an increase of $590,664, or 6.03 per cent. The Middle West continues to be the principal field of usefulness of this material. Sewer pipe, which showed a decrease in 1909, regained its loss and exceeded its 1908 product by $424,965, or 3.86 per cent.

Fire brick showed a larger gain over 1909 than any other product, $1,490,779, or 8.97 per cent. In 1909 silica brick was included with clay fire brick, as it was impossible to separate them; therefore, for 1910 for comparative purposes, they are combined. For 1910 a separate inquiry was made for silica brick, and its value as reported was $3,289,028.

The total increases were: Brick and tile, $1,059,524, or 0.78 of 1 per cent, and pottery $2,735,237, or 8.81 per cent, a total of $3,794,761, or 2.28 per cent. In 1909 the increases were: Brick and tile, $27,209,565, or 25.18 per cent, and pottery, $5,913,886, or 23.53 per cent, a total of $33,123,451, or 24.87 per cent.

The following table shows the value of the products of clay in the United States from 1901 to 1910, inclusive, by varieties of product, together with the total for each year and the number of operating firms reporting:

Vitrified paving brick, after an almost steady gain in quantity for nine years, showed a small decrease in 1910—55,654,000, or 5.44 per cent. In average value per thousand it ranged from $9.06 in 1901 to $11.37 in 1910.

Front brick reached its maximum quantity in 1909—816,164,000—and showed a decrease in 1910 of 118,307,000 brick, or 14.50 per cent. By a steady increase, except in 1907 and 1908, it more than doubled its value from 1901 to 1909, the increase in 1909 being very large, but it fell off again in 1910. The price per thousand ranged from $11.34 in 1901 to $13.12 in 1905, with $12.31 as the average for 1910.

Enamel brick, after more than doubling its value from 1901 to 1909, showed a decrease in 1910.

Fire brick attained its maximum value in 1910, nearly doubling that of 1901.

Drain tile is the only product to show a steady gain throughout the 10 years covered by the table, its increase in value in this period being $7,246,821, or 230.57 per cent. For the first time it reached a value of over $10,000,000 in 1910.

Sewer pipe gained steadily in value from 1901 to 1907, and then for two years it showed a decline; but in 1910 it almost equaled its maximum output—that for 1907.

The John F. Stevens Construction Company, of Jersey City, N. J., has been incorporated to do a general contracting and constructing business, with a capital stock of $2,000,000. The incorporators are: R. G. Babbage, F. Hill, B. M. Fellows, of New York City; F. M. Saunders, Bronx, N. Y.; C. A. Lensenfeld, Brooklyn, N. Y.; L. B. Dailey, East Orange, N. J., and J. F. Buck, of New Canaan, Conn.

The Vitrolite Construction Company, of Chicago, Ill., has been incorporated with a capital stock of $15,000, to manufacture and deal in building material and furniture. The incorporators are: John Bott, Charles H. Allen and Charles K. Cahill.

The Phillips Buelding Company, of Kansas City, Mo., has been incorporated with a capital stock of $20,000. The incorporators are: Charles E. Phillips, Fred W. Segur and Charles E. McCoy.

The Rio Delta Clay Products Company, of San Benito, Texas, has been incorporated with a capital stock of $10,000. The incorporators are Sam Householder, W. D. Carpenter and E. W. Watts.

The Skafgard Construction Company, of Chicago, Ill., has been dissolved.

The Cherokee Bay Construction Company, of Reyno, Ark., has been incorporated with a capital stock of $50,000.

The Moore Architectural and Engineering Company, of Akron, Ohio, has increased its capital stock from $15,000 to $20,000.

The D. J. Kenealy Construction Company, of Youngstown, Ohio, has been incorporated with a capital stock of $10,000. The incorporators are D. J. Kenealy and others.

The Brooks Construction Company, of Fort Wayne, Ind., has been incorporated with a capital stock of $25,000. The incorporators are: John F. Brooks, Lester E. Ginn and Clarence F. Magee.

The E. L. Winn Construction Company, of Kansas City, Mo., has been incorporated with a capital stock of $2,000. The incorporators are: E. L. Winn, Mamie B. Winn and George W. Stubbs.

The Hundley-Stewart Construction Company, of Oklahoma City, has been incorporated with a capital stock of $250,000. The incorporators are: R. L. Robertson, R. Simpson and Charles S. Shaw.

The Argyle Building Company, of Cleveland, Ohio, has been incorporated with a capital stock of $10,000. The incorporators are: E. J. Moffett, C. A. Nimau, H. F. Parks, E. G. Hoag and L. T. Smyth.

The Illinois Contracting and Building Company, of Chicago, has been incorporated with a capital stock of $10,000, to do a general building and construction business. The incorporators are: W. A. Feeney, Frank Venning and Rupert J. Barry.

The Gray-Wimmer Construction Company, of St. Louis, Mo., has been incorporated with a capital stock of $28,000, to do a general contracting business. The incorporators are: G. C. Wright, H. A. Berkmeyer, of St. Louis; W. L. Wimmer and C. L. Gray, of East St. Louis.

Value of the products of clay in the United States in 1909 and 1910, by States and Territories.

State or Territory.	1909			1910		
	Brick and tile.	Pottery.	Total.	Brick and tile.	Pottery.	Total.
Alabama	$1,663,788	$36,339	$1,700,127	$1,645,313	$22,246	$1,667,559
Arizona	107,940	.....	107,940	126,777	.....	126,777
Arkansas	600,550	26,474	627,024	550,105	28,350	578,455
California	4,312,590	124,575	4,437,165	4,744,968	97,423	4,842,391
Colorado	1,994,798	54,226	2,049,024	1,982,827	50,887	2,033,714
Connecticut and Rhode Island	1,515,595	(a)	1,515,595	1,568,486	(a)	1,568,486
Delaware	231,505	.....	231,505	216,555	.....	216,555
District of Columbia	214,489	(a)	214,489	242,861	(a)	242,861
Florida	298,620	.....	298,620	237,268	.....	237,268
Georgia	2,265,121	29,380	2,294,501	2,510,740	21,298	2,532,038
Idaho and Nevada	416,695	.....	416,695	347,437	.....	347,437
Illinois	13,505,898	838,555	14,344,453	14,331,414	844,747	15,176,161
Indiana	6,744,295	900,928	7,645,223	7,143,306	956,704	8,100,010
Iowa	4,846,706	51,990	4,898,696	5,310,706	17,535	5,328,241
Kansas	2,709,822	(a)	2,709,822	2,661,527	(a)	2,661,527
Kentucky	2,332,475	146,397	2,478,872	2,418,116	149,421	2,567,537
Louisiana	528,261	(a)	528,261	546,873	(a)	546,873
Maine	635,667	(a)	635,667	599,881	(a)	599,881
Maryland	1,400,380	320,432	1,720,812	1,614,348	223,925	1,848,273
Massachusetts	1,631,858	256,028	1,887,886	1,469,018	238,395	1,707,413
Michigan	1,947,059	95,439	2,042,498	2,083,525	112,697	2,196,222
Minnesota	1,755,438	(a)	1,755,438	1,901,296	(a)	1,901,296
Mississippi	779,009	19,341	798,350	613,009	19,990	632,999
Missouri	7,367,061	73,122	7,440,183	7,058,705	29,061	7,087,766
Montana	451,389	(a)	451,389	411,824	(a)	411,824
Nebraska	1,146,449	.....	1,146,449	938,827	.....	938,827
New Hampshire	552,215	(a)	552,215	566,121	(a)	566,121
New Jersey	9,380,958	7,791,136	17,172,094	9,245,854	8,588,455	17,834,309
New Mexico	182,755	(a)	182,755	129,275	(a)	129,275
New York	10,270,227	1,867,209	12,157,436	9,778,288	2,093,661	11,871,949
North Carolina	1,283,902	18,709	1,302,611	1,208,674	14,990	1,223,664
North Dakota	269,324	.....	269,324	227,455	.....	227,455
Ohio	16,929,885	13,416,356	30,346,241	17,231,236	14,294,712	31,525,948
Oklahoma	1,032,314	.....	1,032,314	920,921	.....	920,921
Oregon	827,963	(a)	827,963	876,632	(a)	876,632
Pennsylvania	19,403,944	1,782,769	21,186,713	19,814,355	2,279,930	22,094,285
Porto Rico	34,506	(a)	34,506	27,773	(a)	27,773
South Carolina	$751,037	$1,967	753,004	$696,600	$7,990	$704,590
South Dakota	68,660	.....	68,660	71,200	.....	71,200
Tennessee	1,575,262	73,610	1,648,872	1,205,108	209,180	1,414,288
Texas	3,026,035	122,428	3,148,463	2,744,845	119,085	2,863,930
Utah	874,159	(a)	874,159	864,258	(a)	864,258
Vermont	83,360	.....	83,360	89,253	.....	89,253
Virginia	1,919,771	36,746	1,956,517	1,793,270	46,417	1,839,687
Washington	3,044,275	16,211	3,060,486	3,023,854	(a)	3,023,854
West Virginia	1,139,627	2,350,470	3,510,097	1,322,457	2,675,588	3,998,045
Wisconsin	1,130,380	9,209	1,139,589	1,167,918	8,965	1,176,883
Wyoming	67,755	.....	67,755	50,237	.....	50,237
Other States	.....	569,395	569,395	.....	623,026	623,026
Total	135,271,772	31,049,441	166,321,213	136,331,296	33,784,678	170,115,974
Per cent of total	81.33	18.67	100.00	80.15	19.85	100.00

a Included in "Other States."

Value of the products of clay in the United States in 1909 and 1910, with increase or decrease.

Product.	1909	1910	Increase (+) or decrease (−) in 1910.	Percentage of increase (+) or decrease (−) in 1910.
Common brick	$57,251,115	$55,219,551	−$2,031,564	− 3.55
Vitrified paving brick or block	11,269,586	11,004,666	− 264,920	− 2.35
Front brick	9,712,219	8,590,057	− 1,122,162	−11.55
Fancy or ornamental brick	174,073	179,505	+ 5,432	+ 3.12
Enameled brick	993,902	832,225	− 161,677	−16.27
Drain tile	9,799,158	10,389,822	+ 590,664	+ 6.03
Sewer pipe	10,322,324	11,428,696	+ 1,106,372	+10.72
Architectural terra cotta	6,251,625	6,976,771	+ 725,146	+11.60
Fireproofing	4,466,708	5,110,597	+ 643,889	+14.42
Tile (not drain)	5,291,963	5,240,644	− 51,319	− .97
Stone lining	423,583	503,806	+ 80,223	+18.94
Fire brick	16,620,695	18,111,474	+ 1,490,779	+ 8.97
Miscellaneous	2,694,821	2,743,482	+ 48,661	+ 1.81
Total brick and tile	135,271,772	136,331,296	+ 1,059,524	+ .78
Total pottery	31,049,441	33,784,678	+ 2,735,237	+ 8.81
Grand total	166,321,213	170,115,974	+ 3,794,761	+ 2.28

Production of clay in the United States in 1909 and 1910, by kinds, in short tons.

Kind.	1909			1910		
	Quantity.	Value.	Average price per ton.	Quantity.	Value.	Average price per ton.
Kaolin	31,227	$241,060	$7.72	34,221	$255,873	$7.48
Paper clay	81,586	386,764	4.74	85,949	420,476	4.89
Slip clay	18,010	30,527	1.70	17,696	29,962	1.69
Ball clay	49,074	214,194	4.36	70,637	257,265	3.64
Fire clay	1,463,919	2,062,193	1.42	1,638,931	2,157,720	1.32
Stoneware clay	130,757	137,264	1.05	152,942	153,044	1.00
Brick clay	222,686	171,183	.77	173,625	128,039	.74
Miscellaneous	162,388	186,522	1.15	215,228	223,106	1.04
Total	2,159,647	3,449,707	1.60	2,389,229	3,625,485	1.52

OUR TRANSPORTATION MADNESS

Wonderful American Developments and Its Peculiar Effect on High Cost of Living—Inevitable Return to the Waterways For the Products of the Mississippi Basin.

The development of transportation has been the keynote of the growth and progress of the United States of America. In less than one hundred years the whole system of applying steam and all other types of inanimate motive power has been brought into being within the boundaries of this country. In all history there is no suggestion of transportation, either for freight or passenger, other than horse or ox-drawn vehicles and oar or sail-driven vessels, down to our own power propelled paddle wheels and friction drive wheels. It has all been American invention and American development, because in no other country has there ever been any such need for transportation as existed in this country during the period of filling up with people a vast wilderness of originally inaccessible territory.

For comparison, one has only to glance at the map of Europe to see that nature provided the means without cost for the most intimate and unlimited water transportation, with an almost continuous fringe of bays and other harbors, while the narrow continent as well as the larger outlying insular territory is admirably equipped with navigable rivers to such an extent that the longest necessary haul to nearest water transportation is in fact very short. This is the reason why Spanish, French, German nor English genius ever got busy along the lines of modern transportation development—there was simply no call for such a thing and hence no reward for the inventor.

The Superlative Degree.

Today both Europe and America are gone transportation mad with American inventions which have at last reached the superlative degree of madness with the well-nigh perfected flying machines, that are, in fact, only a step beyond the two-mile-a-minute automobile and motorcycle.

Transportation madness is a distemper for which there is as yet no established remedy. It pervades the entire social and economic fabric of the times, and directly and indirectly levies an inordinate burden of taxation upon every product and every commodity known to commerce, from foodstuffs and building materials to etiquette and politics. It is the main cause and principal factor in the universally complained of high price of living, and as such it is getting worse day by day and year by year.

History Reveals the Future.

The evolution from stage coach to locomotive took the lifetime of a generation, while the bicycle, automobile and aeroplane all came into being in a decade. All of these must be paid for some time, and as a matter of fact little or none of them has been paid for yet. As the pace grows faster the debt piles up higher. Nobody can tell what will be considered a reasonable rate of speed ten years hence; one thing is certain, it will be much faster than the present. There will be ten-hour trains from Chicago to New York, and ninety-nine year three per cent bonds will be sold to pay for the speed, perhaps. Of course the three per cent will be added to the cost of living by charging more for hauling grain, coal, cement and other necessities, to make up the additional interest. No thought of the principal need worry anybody now, for some genius of the future will doubtless devise some sort of a refunding or reissue scheme based upon some value as yet unknown and undefined to pass the debt on to yet another century, and that is far enough off to give us no worry today. Our trouble is the fast maturing principle of the first bond issues that were sold to pay for the twenty and thirty-mile-an-hour trains of the generation just before us. With top-heavy inventions and top-notch valuations it is difficult to absorb the modest beginnings of transportation madness, so there is no other way except to charge the whole burden upon the consumer in the cost of living. Who can answer for the cost of living when the deferred payments of transportation madness gets into full swing in the next ten or fifteen years?

The Basis is Changed.

There are no more great areas of untilled farm lands to be developed and so create new sources of wealth. The emigrant farmer, once such a prolific contributor, has ceased to be profitable. He finds that $100 per acre land is not cheap, and low priced crops are gone forever. Mississippi valley crops with transportation added to the Atlantic seaboard can no longer compete in the markets of the world with the products of those countries which have never suffered from the great American malady of transportation madness. It is the madness of waste, debt, interest, loading the future with obligations that will not and cannot be met and liquidated, and the dawn of the realization of this fact is just becoming apparent—hence the higher rates to come out.

Enormous Cost to Be Absorbed.

The aggregate of the transportation securities or promises to pay in the United States runs into figures beyond comprehension. There never was such an amount of actual money in the world. So it is all a fabric of debt and credit, and between the producer of human necessities and the consumer thereof the total debt of transportation madness must be collected by the medium of ever-advancing rates, that works more effectively in closing the markets of the world against American products than any number of schedules that might be enacted by congress in a century, even if they made a botch of the whole list every time.

Old Methods of Figuring Changed.

The basic figures of the economic problem have all changed since the average price of farm land in the Mississippi valley was freely sold at $3 to $3.50 per acre, as was the case at the close of the war of the rebellion. At that time the crop of a single season was worth five times the price of the land whenever it could reach the seaboard to find consumption beyond. And this was the basis upon which present transportation was projected and organized, and so the big seaboard cities of the east were built up by the products of the cheap western farms in spite of the transportation madness of hauling those products more than a thousand miles overland, climbing mountains quite as impassable as the classic Alps, and three times as extensive. The waste in the cost was not noticed along with the cheapness of land and labor in years that are past, but all the land is now filled with owners who have passed the working for a foothold stage, and that physical cost which has always been kept in the background is the ghost of Banquo in transportation financiering. In these days we are prone to consult the tape of the ticker or the "bid and ask" of the financial page of the morning paper, without any thought of the physical operations reflected by these mediums of record.

Importance of Physical Geography.

Just consider the topographical map of the United States, as did General Winfield Scott when he offered President Lincoln his plan to choke the rebellion in six months without a battle, by blockade and seizing the natural means of transportation. Perfectly feasible in every particular, but the Scott plan could not be financed in the east, and it cost thirty times the highest estimate to secure the same result by conducting a railroad war. As did Henry Clay, whose policies in Congress created Chicago by advocating the cessions of land to build the Illinois and Michigan Canal. As did Thomas Benton, when he advocated the control of the Missouri river from St. Joseph to St. Louis. But no publisher finds it profitable to make true topographical maps, because the railroads pay them better for maps to show straight lines between the great commercial centers, with mere shadings to show mountain chains and valleys having total elevations of thousands of feet.

Nature's Persistent Suggestions.

So the physical path for the products of the once cheap Western farms consists of a series of hurdles in the shape of mountain chains forever to keep up the rate, while all the time nature quietly but insistently keeps perpetually the suggestion of no rate gravity, free from debt and obligation transportation by the flow of the water system of rivers to the Gulf of Mexico.

The natural outlet of the whole Mississippi Basin to the seaboard is through the port of New Orleans; not New York, as the experts in transportation madness would have us believe.

This is so clear to all who are not contrariwise interested that the Mississippi River must eventually carry all of the surplus products of the great basin drained by its tributaries to the seaboard for distribution to the markets of the world, that no Congress has ever dared to openly neglect the national patronage of the people's free right of way from farm and factory to the seaboard. This in spite of the highly paid lobbying always maintained by the vested transportation interests at the capitol.

The Voice of the People.

The people, that is, the owners of those once cheap Western farms and their neighbors, have learned a thing or two about the costs of transportation and the basis of transportation securities. They are not inclined to pay tribute to either the mistakes or past benefits of eastern financial organizations that still need the contributions of the once servile western producer, nor are they to be blinded by the facetious chatter of political charletans who pretend to work for the will of the people while their real effort is to betray that purpose amidst a maze of details involving impassable dimensions for engineering projects, together with waterpower development at various points selected for especial discussion.

In line with this the people of the state of Illinois have voted $20,000,000 for the purpose of constructing a new waterway or improving the Illinois and Michigan Canal with larger locks and other additions to the channel so that boats of modern type may go through from the Great Lakes to the Gulf of Mexico.

Thus simply stated is the will of the people, but it has to be construed by every cheap politician (little and big) so as to mean almost anything else.

Popular Standard Bearers.

The Lakes to the Gulf Waterway Association is a popular organization springing up from the demand of the people to make the greatest possible use of the greatest possible improvement of the internal waterways of the Mississippi Basin. With capable leaders this association is persistently bringing the will of the people in this regard from a territory twice the size of Europe, and representing more than half the population of the United States, to the attention of Congress and the officials at Washington. Working in conjunction with the National Rivers and Harbors Congress, another organization whose attention is more particularly devoted to the seaboard localities, this organization is working intelligently for the sane, logical and ultimately certain solution of transportation problems and freight rates to the seaboard, the only cure for transportation madness yet devised.

This movement is by far the most important from an economic standpoint that has ever come from the people who make this great nation, and it will prevail in spite of paid oppositon in political quarters.

The Way to Secure Federal Aid.

The attitude of the President is conservative and well taken for the time being. It is really up to those who clamor for immediate Federal appropriations and assistance to demonstrate with the present facilities for water transportation that the same are being used to something like capacity, or at least actively, and the President will be found in line for a strong paragraph in his message to Congress, because he would thereby have no choice left to him. Like all other popular demands, the government has to be convinced by physical reports, and with activities like that at St. Louis, on the part of Chicago shippers, with Pittsburg, Cincinnati, Louisville, Kansas City and the upper Mississippi thrown in, there would be no shortage of the sinews of war for improvement.

Miller & Johnson, Inc., of Paterson, N. J., has been incorporated to carry on a general building, contracting and real estate business, with a capital stock of $25,000. The incorporators are: R. E. Miller, J. Johnson and M. Cooney, all of Paterson, N. J.

The Bridgeport Construction Company, of Poughkeepsie, N. Y., has been incorporated to carry on a general contracting business; capital stock $40,000. The incorporators are: M. R. Aldrich, Poughkeepsie, N. Y.; W. T. Hincks and G. E. Crawford, of Bridgeport, Conn.

The W. F. Hopkins Construction Company, of St. Louis, Mo., has been incorporated with a capital stock of $2,000. The incorporators are Cordelia, W. F. and L. F. Hopkins.

The C. O. Bartlett & Snow Co., engineers and manufacturers of elevating and conveying machinery, Cleveland, Ohio, has recently issued a catalogue on triumph drop forged chains. The catalogue contains photographs and descriptions and a complete price list.

A number of architects and builders of Washington, D. C., recently made a trip to Baltimore to inspect a new reinforced concrete beam which is being manufactured by the American Siegwart Company.

QUARRIES

PROTECTING THE EQUIPMENT.

When the frost, rain and other disagreeable features of the winter weather comes along there arises on all sides questions of how to best protect and care for the equipment, including everything from hand tools to machinery equipment of all kinds.

It is a pretty hard question to answer, too. Sometimes it is easy enough to answer specifically how to best care for or protect this special item or that one. Still, the best protection for nearly any equipment or any tool is to keep it in good working order and keep it at work. Machinery of all kinds, and tools, ropes, chains, blocks, and everything really suffer more from rust than they do from use. There are some exceptions, of course, some parts of machinery and equipment that are put to such hard and wearing use that they are worn out in a short while, but in the ordinary run of tools and equipment there is more damage done by the rust of disuse than from use itself.

Sometimes a part of the equipment can be stored away during the bad months of winter, and during these months it becomes imperative to keep as much of the equipment as practical under shelter and in good condition. You may during the dry summer and early fall save time and worry by leaving the equipment strung out here, there and everywhere, but it won't do in the winter. A proper shelter should be provided, not merely a bluff at a shelter, but something with a roof on it that is absolutely rain-proof.

Then there should be protection from the moisture of the ground, either with a floor or with benches to keep stock up from the ground and keep everything dry and protected from the moisture. That is the first and important thing.

After you provide a place to store and care for that part of the equipment not in active use all the time the next important step in the care of tools and equipment is to see that nothing is stored away wet or dirty. Have everything cleaned off and put in order when it is stored away, and do not wait until it is taken out for use again before doing this. It is dirt and moisture that starts rust, and the time to remove it is before it starts to rusting, and not afterward. So clean off all metal parts thoroughly and when the moisture is removed get some kind of an application of oil.

Coal oil helps clean, but it is not heavy enough to offer a protecting coat to metal. It is better to clean with it if necessary, and then after the parts are dry use a thicker oil of some kind and get a protecting coat on the metal, no matter whether it is tools or blocks. A splendid thing for shears and blocks is to clean them thoroughly, wash them, if necessary, and then dry them. Get them thoroughly dry, after which they may be oiled or greased all over to protect them against rust. A free use of lubricating oil is a good thing. It is messy, but the mess can be cleaned off, and it is a protection against moisture and rust.

Those tools and that part of the equipment which you keep in use every day will be reasonably well cared for. It will be worth while, though, to give a little bit of particular attention to its care during the winter months.

See that everything is dried and cleaned at night; then, if it is unusually cold, see that the tools are warmed up a little before they are put to work, to take the chill out of the metal. The same thing applies to machinery.

With care of this kind and proper housing for all equipment that is not in use, one should be able to reduce depreciation to a minimum, and it is worth mentioning, too, that in this way you can get better work and more satisfaction in the use of the tools and equipment, as well as make it last longer.

The National Stone Company of Louisville, Neb., which operates a limestone quarry near that place with a capacity of 500 to 600 tons per day, has made extensive improvements in its plant during the past year. Mr. Heedn, the sales manager, with office at 913 New York Life Building, Omaha, Neb., writes that the season of 1911 was not up to the standard, although there was considerable business in that section, the cause of the slight depression being due to inactivity in building circles in general.

DAVIS QUARRY

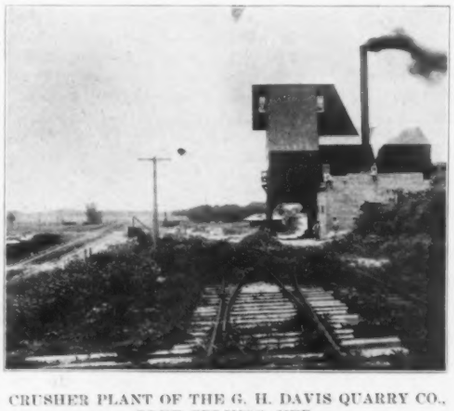
At Blue Springs, Neb., Has Been in Operation Since 1895 and Ships Its Output Over a Wide Territory.

The G. H. Davis quarry, at Blue Springs, Neb., was opened in 1895 by Frank K. Mayne and M. H. Reed, under the firm name of Reed and Mayne. These two men operated and improved the quarry. They had fine stone but poor facilities for quarrying and shipping the same. Mr. Reed retired from the firm in 1900 and his interest was sold to W. W. Black. Mr. Black gave his energies to the development of the property for two years and in 1902 sold his half of the firm to G. H. Davis and the business was continued under the firm name of Davis and Mayne until the latter part of 1906. During the length of this partnership more land was purchased and in 1904 the first stone crusher was installed and a plant built. This plant was smaller than, though similar in construction, to the present plant. It contained one No. 3 crusher, while the present plant has both No. 3 and No. 5 crushers.

ABOUT HALF OF THE FACE NOW WORKED OF THE G. H. DAVIS QUARRY, BLUE SPRINGS, NEB.

SMALL CORNER OF FACE NOW WORKED OF THE G. H. DAVIS QUARRY, BLUE SPRINGS, NEB.

Their first mill was totally destroyed by fire in September, 1906, after which Mr. Mayne's interests were transferred to his partner, G. H. Davis, in whose name the business has since been conducted. After Mr. Davis acquired the entire business he redoubled his efforts to make the undertaking a pronounced success and has conducted his business along modern lines ever since. He first built a new crushing plant, a bigger and better plant in every way, although it took him some time to secure the lumber for the timber work of the plant, as lumber was very scarce at that time and he was compelled to send to the coast for the wood. The new plant started operations in April, 1907, and has been operating steadily since that date.



CRUSHER PLANT OF THE G. H. DAVIS QUARRY CO., BLUE SPRINGS, NEB.

The following is a summary of the output and the payroll by years:

Year.	Cars shipped.	Am't of payroll.
1902	813	$ 8,623.85
1903	1,018	14,395.39
1904	1,280	21,426.49
1905	1,364	21,164.89
1906	1,316	21,647.83
1907	1,315	25,880.16
1908	747	14,121.56
1909	794	14,879.63
1910	719	13,739.55

There is always a large force of men at work in the quarries and the greater part of the year the number runs over 75. The average, however, is about 50, and sometimes it is as low as 25 and again as high as 100. The general financial depression of 1908 showed its effect in the production of stone that year and not yet have they fully recovered from that depression. Of the cities and towns of Nebraska, Lincoln is the largest consumer of this stone. Large amounts are also shipped to points in northern Kansas, some goes to Iowa, while quantities are shipped as far as South Dakota, Wyoming and Colorado. Although almost any kind of stone can be obtained at the quarry, the larger part of it is used for foundations, for ballast, for concrete work of all kinds and for various special jobs.

Counting all kinds of stone the capacity of the Davis quarry is 1,000 tons per day. The Union Pacific tracks pass directly under the bins of the crusher and other railroad lines have shipping facilities at this point which greatly expedites the transportation problem. With the modern methods now employed and the up-to-date machinery in use at the quarry, there is little needed to make the plant a perfect type of its kind.

The city council of Sterling, Ill., has decided to sell its stone crusher and go out of the quarry business.

The Roberts Stone Company, of Racine, Wis., has rebuilt its derrick which fell several weeks ago, entailing a loss of $1,200.

A strata of black limestone was drilled into at a depth of twenty feet at the J. W. Craig stone quarry near Greensburg, Ind.

The Ruggles-Coles Engineering Company, New York city, have sold a portable dryer for heating road materials to Dayton Hedges, of Patchogue, L. I.

Work at the William Ascher stone quarry at Freeport, Ill., will continue until some time in December if the weather permits. A force of twenty-five men has been employed.

A notice of the surrender of the charter of the Fort Smith (Ark.) Curb Crushed Stone Company has been filed. H. F. Rogers will assume the debts and contracts of the corporation.

Marinette county, Wis., has purchased a new stone crusher from the F. L. Smith Company, of Milwaukee. The machine weighs nine tons and is capable of crushing 150 yards of stone in one day.

The San Dimas quarry, near Los Angeles, which was put into operation about a year ago, is now reported to be very busy. It has just closed a big contract to furnish rock to the city of Los Angeles, calling for an output of 1,000 tons a day.

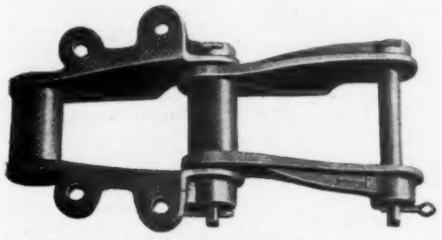
The Lindsay Brown Stone Quarry Company, of Camden, N. J., has been incorporated to quarry slate, granite, stone, etc., with a capital stock of $75,000. The incorporators are: F. R. Ansell, J. A. MacPeak and I. C. Clow, all of Camden, N. J.

William Dilling, of Alton, Ill., quarry owner, was buried alive for fifteen minutes recently but laborers dug him out in time to save his life. The men were working on a bank where the earth was soft and he warned the laborers not to get too close as they might get caught in a landslide. He undertook the work himself. When the break came he was covered with earth and small rocks. His left leg was fractured and he was internally injured.

MANGANESE STEEL.

Now Being Used Extensively in the Manufacture of All Kinds of Chains—Cheaper Despite High Initial Cost.

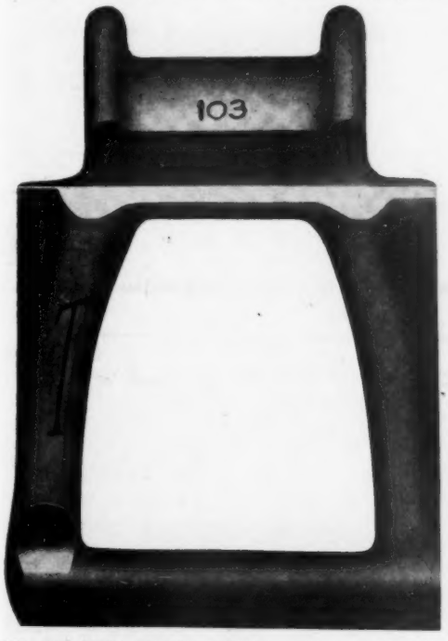
The Taylor Iron & Steel Co., of High Bridge, N. J., realizing the excellent wearing qualities of manganese steel, and in response to numerous inquiries for a chain that would stand up in severe service, have within the last few years entered into the manufacture of the standard types of chain in manganese steel. The trade in general have long recognized the value of this steel, especially when used in handling gritty and abrasive materials, and they have not been slow to adopt manganese chain, since it has proven to be the thing to overcome



"800 SERIES" CHAIN WELL DESIGNED FOR HEAVY SERVICE.

trouble experienced in the rapid wear of ordinary malleable and steel chains.

Manganese chain has gone through some of the most severe tests to which any chain ever could be put, and in every case the actual saving in dollars and cents has been so apparent that the higher initial cost does not enter into the consideration of upkeep. The matter of replacement is quite an item where breakage or renewal of equipment is frequent. For instance, cement mill engineers have, in the past, had no end of trouble with their malleable chain elevators wearing very rapidly, due to the abrasive action of the clinker being handled. This frequently results in a breakdown, allowing the whole elevator to fall into the shaft. If this does not occur, frequent renewals are certain, and every minute of wasted time due to this idle equipment



NO. 103 DETACHABLE CHAIN, A VERY POPULAR SIZE IN CEMENT MILLS.

means an increased factor of cost per unit of finished product.

Manganese chain has not "cured" all of the troublesome chain drives and elevators in the country, nor has it succeeded in proving its worth to all of the more skeptical, but it has, where once installed, shown its worth to such an extent that some of the largest mills in the country are now equipping throughout with it. One cement mill in the middle West has had six hot clinker elevators equipped with manganese steel chain for about two years and, even though malleable chain, which it replaced, wore out in from six to ten weeks, it now shows no appreciable wear, only having worn bright in places exposed to flexure. Manganese steel draw chains in steel mills have worked under heavy tension and shown the same relatively high wearing qualities. Sand, gravel, rock, ore, coal and ash handling plants are finding it very well adapted to their class of work and are coming to learn that economy is shown by its introduction where wear is the factor to be overcome.

The detachable type of chain was the first to be perfected in manganese steel. Owing to difficulties met with in casting, it is not practical to make any smaller size than No. 88 of this type. The No. 88 and larger are now on the market, all of which are interchangeable in every way with malleable link or chain belting. Aside from the many kinds of special chains now being made, practically all of the standard types for conveying and elevating work are on the market. The combination and leybushed or peerless, in manganese steel are finding very extensive fields of application, and are proving their worth in every case where the service calls for a wear resister.

Sprockets or traction wheels are made in manganese steel for all of the various types of chain, and are showing equally as good results as the manganese chain.

Only a few years ago mine and mill supplies were bought solely according to price. Fortunately, this is no longer true, for intelligent users realize that it is costly to dismantle and change parts of machines. The cost of the part replaced may be insignificant as compared with the loss of output during time of changing, while the breakage of a casting may also entail immense loss of life and property.

The great reputation made by this metal has lead many to believe that it is a "cure all" for any trouble that may have been experienced with material which it replaces. This is not altogether true, as there are many good chains manufactured, each better adapted to handle the particular class of work for which it was designed. The first cost of manganese steel chain is, as a rule, higher than malleable or steel chain which it replaces, and it is necessary that its use be recommended only where it will last enough longer to repay the user for the additional initial outlay.

With this in view, the manufacturers have endeavored to introduce manganese chain only where it is actually needed, which careful discrimination, along with the excellent qualities of the chain itself, bespeaks a steadily increasing demand from users who have the wear and tear of hard service to contend with.

NEW YORK QUARRY NEWS.

New York, N. Y., Dec. 18.—M. H. Wilson of the Point Stone Company reviewed the local crushed stone trade as follows: "A very good demand for crushed stone was experienced during the past month. Contractors are anxious to finish their jobs before the severe weather sets in, and we were kept busy making deliveries. There is a great deal of street paving work being done in New York City, and this has also kept us going very briskly. Business during the year was fair, but it did not come up to trading in 1910, as last year was the most prosperous year we have experienced for some time."

For the first time in Milwaukee crushed stone has been shipped by boat direct to the building where it was to be used. Stone for use in the foundation work of the Merchants & Manufacturers' bank on West Water street, between Grand avenue and Wells streets, was carried by the steamer Topeka, and run into the basement five minutes after the boat had docked.

GOOD RULES FOR BUSINESS MEN.

Don't worry; don't overbuy; don't go security.

Keep a high vitality; keep insured; keep sober; keep cool.

Stick to chosen pursuits, but not to chosen methods.

Be content with small beginnings and develop them.

Be wary of dealings of unsuccessful men.

Be cautious, but when a bargain is made stick to it.

Keep down expenses, but don't be stingy.

Make friends, but not favorites.

Don't take new risks to retrieve old losses.

Stop a bad account at once.

Make plans ahead, but don't make them in cast iron.

Don't tell what you are going to do until you have done it.—Exchange.

SAND-LIME BRICK

SAND-LIME TESTING DEPARTMENT.

Parties who contemplate taking up the manufacture of sand-lime brick almost invariably investigate the merits of their materials in advance, so as to determine whether or not they can be successfully and economically made into this class of brick. When subjected to a practical test, some apparently excellent materials prove utterly worthless, while others superficially less promising, produce exceptionally good brick. In order to make these tests accurately and satisfactorily, The American Clay Machinery Company, Willoughby, Ohio, has equipped its sand-lime testing laboratory with a complete line of machinery and appliances of the most approved design, and the tests are made under the personal supervision of experts who conduct them impartially and in the most thorough manner possible.

The materials to be tested are received in bags, barrels or boxes. Promptly upon their arrival they are carefully inspected, and each variety of sand given a progressive number corresponding with a like number in the test records. A small sample of each variety submitted is then subjected to a screening test to determine how fine it is and what additional pulverizing will be desired. Samples of each kind are also kept in small glass jars properly labeled for future reference. Chemical tests are also made of materials when found advisable.

The sand is then turned over to the testing department, together with a written order giving the name and address of parties for whom the test is to be made, the progressive number to be stamped on the samples, the number of brick of each kind to be made up and the proportions of sand, lime and coloring matter to be used. The written order also contains instructions as to the grinding of the sand, hydration of the lime, and moistening of the mixture. In fine, the complete details of the test are made up and given to the tester at the same time he receives the sand.

The sand and lime may be prepared for pressing into brick in accordance with several different systems. In one of these systems the quick lime after being pulverized and hydrated is mixed in proper proportions with the dry sand in the experimental tubemill (see illustration). Moisture is then added, and the mixture is ready to press into bricks. Sometimes it is found advisable to divide the sand, a part of it being mixed and ground with the total required amount of lime, while the remaining portion is later added in its natural condition. This is known as the division method, and is a very reliable process. In another system the quick lime is first pulverized, and then mixed in proper proportions with the sand, after which moisture is added, and the mixture placed in storage bins where it is allowed to stand for a period of about twenty-four hours until complete hydration of the lime has taken place. The mixture is then ready for pressing into brick.

In still another system the quick lime after being pulverized and hydrated is mixed in proper proportions with the sand in a wet pan especially arranged for experimental work. By the use of this machine very satisfactory samples are obtained.

After the sand and lime have been properly prepared, ground, and the necessary moisture added, the mixture is taken to the pressing department to be pressed into brick. For this purpose the full size Model "C" or rotary press is used, so that samples will be in all respects equal to the regular product of a sand-lime brick plant. In special cases, however, the No. 8 hand press, or the No. 605 hand lever press are utilized. After the brick are pressed the number is stamped on each one, in order that its identity cannot be mistaken later. The green bricks are then conveyed to the experimental hardening cylinder in which they are subjected to steam pressure for periods ranging from ten to fifteen hours. The bricks are then removed, carefully inspected, and selections sent to the parties for whom the tests are being conducted.

The laboratory is also provided with a massive hydraulic press, in which the crushing strength of the samples can be accurately determined. For the preparation of sandstone, rocks, and other coarse material, an experimental ball mill, a jaw crusher, and a fine grinder, have been installed, so that materials of every description can be readily tested.

EIGHTH ANNUAL

Sand Lime Brick Manufacturer's of the United States and Canada Hold Interesting Meeting at Grand Rapids.

Amongst all our acquaintance with trade associations ther is none more enterprising, persistent, progressive, in fact, thoroughly up to the times, than the American Association of Manufacturers of Sand Lime Products. Perhaps no other industry of equal proportions and general importance has secured so much benefit as the result of cooperative effort through its national association, for they get right down to the physical processes of manufacture, and the comparison and improvement of products, as no other organization in our knowledge has ever tried to do. In fact, the sand-lime brick manufacturer who does not affiliate with the association and attend the meetings never gets beyond the status of an experimenter, with a product of doubtful merit; while on the other hand those who work in the association make the kind of brick that makes the most rigid inspection and test nod with approval. In fact, "merit of product" is the trade-mark of the association, and this becomes more apparent with each succeeding annual convention.

All of the sessions were held in the green parlor of the Pantlind Hotel, Grand Rapids, Mich., on December 5th and 6th, and all of the officers were reelected for another year, with the filling of one vacancy, as follows:

President—S. O. Goho, Harrisburg, Pa.

Vice-President—William D. Schultz, Brantford, Ont.

Secretary—William E. Plummer, Jr., Buffalo, N. Y.

Treasurer—John L. Jackson, Saginaw, Mich.

Executive Committee.

Eastern District—E. M. Loewenthal, Rockaway, N. J.

Central District—L. W. Penfield, Willoughby, Ohio.

Southern District—H. B. Skeile, Savannah, Ga.

Western District—E. G. Chapman, Minneapolis, Minn.

Canadian District—F. B. Allen, Toronto, Ont.

Features of the Meeting.

President S. O. Goho opened the convention with a characteristic extemporaneous address, briefly giving the views of the leader of the little band of progress and touching upon the good work that has been accomplished by the association as the best earnest for its continued usefulness.

The reports of Secretary Plummer and Treasurer Jackson showed that the business department of the organization is in a healthy condition and well cared for.

Warren E. Emley, lime specialist of the United States Bureau of Standards, presented a paper upon the all-important subject of lime. He explained the scope and purposes and results of the research work now being conducted by the government and its relation to the sand-lime brick industry in ultimately teaching the producers of high calcium lime how to make the most perfectly burned product, with remarks and suggestions regarding the more perfect hydration of such a product.

John L. Jackson's paper, entitled "Quick Hydration," proved to be one of the most entertaining numbers of the program, because it was the deductions from practical operations at the Kalamazoo plant, where the new process of hydration is now just about developed to the point of completion. Mr. Jackson has always been an advocate of hydrating the lime in connection with the bank run of sand, and much of the success of his extensive operations in a large number of plants is due to the local practical factors that he has always kept in view. The broadcast invitation to the delegates to visit the Kalamazoo plant was accepted by practically every delegate either before or after the meeting, and the consensus of opinion is to the effect that Mr. Jackson has developed a cheaper and better way of hydrating the lime for brickmaking than either the old style silo or the hydrating car beneath the loading tracks in the hardening cylinder.

P. L. Simpson, of the American Clay Working Machinery Company, offered his paper on "Sand-Lime Manufacturers in Europe, 1911," being the observations and reminiscences of his recent extended trip abroad. In this instance Mr. Simpson broke all his former records of interest to the manufacturers. The paper, with illustrations, appears elsewhere in this number by special permission of the convention.

Fitting resolutions of respect to the memory of Samuel Vernon Peppel, recently deceased, were adopted. Mr. Peppel was the first and most reliable scientist to record sand-lime brick research in the English language, and as such he is looked upon somewhat as the father of the industry in America. While on the technical staff of ROCK PRODUCTS he was very active in the early meetings of the association.

In this connection it is fitting here to record the passing during the past year of Dr. Michaelis, Sr., of Berlin, who had so much to do with the development of sand-lime brick in Germany, where it first became the brick of first choice for all important buildings. This venerable scientist is more widely quoted in matters relating to lime, cement, gypsum and the products of the same than any other.

H. G. Field conducted the "Round Table" discussion devoted to the subject of "Publicity." Every member present took part in this most important feature of the industry. Practical publicity means the judicious expenditure of money so as to attract business. Naturally, the topic is one upon which every modern business man has an opinion, and various plans and methods were recommended and a committee appointed to work out from all the data accumulated the best plan to put into action.

J. J. Urschell, of the Vitrified Sand-Lime Brick Company, told of the latest development in that interesting new branch of the sand-lime industry.

ANNUAL BANQUET.

According to the established custom, all the delegates assembled for dinner around the sociable banquet board, which is one of the most pleasant features of the convention. On this occasion dinner

DELEGATES AT THE KALAMAZOO QUICK HYDRATING PLANT.

was informal, and a smoker was held thereafter in the convention hall, where Mr. Jackson, of the American Sandstone Brick Machinery Company, set up the cigars and every delegate joined in the talkfest till midnight.

NOTES OF THE MEETING.

The long-distance member of the meeting was G. Silvester, of Calgary, Alberta, Canada, who had to travel about eight days continuously to reach Grand Rapids. He carried two bricks in his satchel that proved to be by comparison mighty good specimens—in fact, there are to be found no better bricks anywhere; that is why he was game enough to carry them 4,000 miles or more.

W. J. Carmichael, of the American Clay Machinery Company, prevented his best friends from going to sleep on Tuesday night and had to leave the meeting early because his Florida and Cuban customers could not spare him any longer.

C. W. Filer, of the Kelley Island Lime and Transport Company, was on hand to talk as well as to sell lime to the manufacturers.

L. W. Penfield arrived a little late, but he was there till the finish and present every minute.

Brother Lowenthal was unavoidably detained at home, but his report from the Eastern Executive District showed that he was a live wire on the association's firing line.

Secretary Plummer is never too busy to lose his good humor. You see, all of building Buffalo is running after his good bricks and he can't forget it.

Allen K. Walton, of the Hummelstown Brownstone Company, was present at the annual meeting for the first time. Right away he got listed among the "heavy regulars" of the association.

John L. Jackson, H. O. Joseph and William Joseph, of the Grande Brick Company, of Grand Rapids, were liberal hosts of the local plant, showing the visitors through one of the newest and best of the "American sandstone" plants.

W. H. Crume, of Dayton, showed that he has good publicity ideas and admits that he has been using them profitably.

Mrs. Burchfield visited Grand Rapids relatives while the irrepressible representative from Rochester was attending the convention.

W. K. Squier, the first president of the organization, is always as active in the convention as in the field of manufacturing operations. He sees the hard pioneer licks bearing fruit.

The Toronto delegation consisted of Messrs. A. Berg and Harry W. Terry. Yes, they were toasting limburger sandwiches at 2 a. m., but always on the job, just the same.

The Attendance.

Hummelston Brownstone Co., Waltonville, Pa. Allan K. Walton, Robert J. Walton, S. O. Goho.

American Clay Machinery Co., Willoughby, Ohio. L. W. Penfield, P. L. Simpson, W. J. Carmichael.

Berg Machinery Mfg. Co., Toronto, Ont. Anton Berg.

Calgary Silicate Pressed B. Co., Ltd., Calgary, Alta. G. Silvester.

Saginaw Sandstone Brick Co., Saginaw, Mich. John Reineke, Hermann Schmeck.

American Sandstone Brick Mchy. Co., Saginaw, Mich. John L. Jackson.

Paragon Plaster Co., Syracuse, N. Y. W. K. Squier.

Rochester Composite Brick Co., Rochester, N. Y. W. M. Burchfield.

Crume Brick Co., Dayton, Ohio. W. H. Crume.

Harbor Brick Co., Toronto, Ont. H. W. Terry.

Flint Sandstone Brick Co., Flint, Mich. E. R. Wood.

Belt Line Brick Co., Minneapolis, Minn. E. G. Chapman.

Grande Brick Co., Grand Rapids, Mich. H. O. Joseph, Wm. Joseph.

Church Brick Co., Sibley, Mich. H. G. Field.

Manufacturers' Equipment Co., Dayton, Ohio. W. H. Sachs, C. G. Stevenson.

Winnipeg Sandstone Brick Co., Winnipeg, Man. Hugh Sutherland.

Buffalo Sandstone Brick Co., Buffalo, N. Y. W. E. Plummer, Jr.

Enamel Vitrified Brick Co., Toledo, Ohio. J. J. Urschel, Mr. Morrison and Mr. Bliss.

THE MANUFACTURE OF SAND LIME BRICK IN EUROPE.

By P. L. Simpson, Chicago, Ill. Paper read before the Sand Lime Brick Manufacturers' Association at their Convention at Grand Rapids, December 5th and 6th, 1911.

During my recent trip abroad, covering a period of four and one-half months, it was my privilege to obtain permission to visit some of the best sand lime brick works in Europe. My first experience was in Great Britain—and arriving as I did in Glasgow, I lost no time in communicating with my friend, Mr. Robert Brand, Jr., of Perth, Scotland, whom I had met in this country about a year previous. Mr. Brand immediately gave me a very pressing invitation to visit him and inspect his works as requested.

The Silicated Brick and Stone Co., of Perth, Scotland, is owned by Mr. Brand, who is also a member of this association. That gentleman is entitled to a great deal of credit, because notwithstanding many obstacles, he has now one of the best sand lime brick plants in Europe. One can realize how many difficulties he has encountered when I state that he had to rebuild his plant twice over before obtaining satisfactory results.

The first outfit was designed by an English firm—which proved unsatisfactory, and a great bulk of it was rejected. Then Mr. Brand made a trip to Germany where he bought another outfit, which also proved to be a failure, and a very small part of that outfit was retained. The press, for example, was discarded after a two weeks' run. Then, after all this experience, involving great expense and worry, he became his own engineer and his present outfit is the result.

The essential features of Mr. Brand's plant comprise:

1st. The thorough pulverization of the caustic lime. No part of it is coarser than 100 mesh.

2nd. The batch system is used to measure the sand and lime. In other words, a definite quantity of sand is united to a definite quantity of lime.

3rd. An adequate and changeable amount of water is used when the batch of sand and lime is dumped into a batch mixer. When I say changeable, I mean that the quantity of water is varied, according as the dampness of the sand varies. The sand is dredged from the River Tay, and naturally the dampness in same will vary according to the time taken for transportation to works—but a given quantity of water is always used with a given quantity of sand, which contains the same content of water.

4th. After siloing the mixture, it is thoroughly prepared for the press by being put through two grinding and mixing pans. First the material is ground and mixed just as it comes from the silo, and after it leaves the first pan it receives another grinding, mixing and mulling, where it receives the necessary water. You can readily see from this bare outline of Mr. Brand's process, how thoroughly he prepares the material. His aim is to get plasticity and of all the plants I visited in my travels I did not find one that prepared the material as thoroughly as did Mr. Brand.

His object is, of course, to manufacture face brick, and for that reason it is quite necessary for him to adopt every known expedient to produce a first class article.

The quality of brick produced at Mr. Brand's works impressed me most favorably. A cracked or chipped brick is of rare occurrence.

The lime used is not first class, having like most limes in Scotland a content of magnesia, running from 6% to 10%, but, notwithstanding this drawback, his brick are first class.

From a test made by David Kirkaldy, of London, on the strength and porosity of Mr. Brand's brick, the following table gives the results:

Test No.	Description.	Dimensions	Base Area	Stress in Pounds when Cracked Slightly	Stress in Pounds when Cracked Generally	Crushed
		Inches	Sq. Ins.			
2194	Sand lime brick (no recess) A5	2.82 9.03 x 4.40	39.73	268,900	282,400	282,400
2192	Do. (re- A1 cessed one side)	2.82 9.04 x 4.38	39.60	202,000	217,500	217,700
2193	Do. Do. A2	2.84 9.03 x 4.40	39.73	198,200	210,000	210,000
2197	Do. Do. B5	2.88 9.00 x 4.38	39.42	187,200	194,600	194,600
2196	Do. Do. B3	2.94 9.04 x 4.40	39.78	162,500	171,000	171,000
2195	Do. Do. B2	2.88 9.00 x 4.38	39.42	140,300	144,200	144,200
	Made from River Tay Sand, and 6% Lime.	Mean	39.61	193,167	203,283	203,283
	*Bricks marked A made 12th April. *Bricks marked B made 26th April.	Lbs. per square inch		4,877	5,132	5,132
		Tons per square foot		313.6	330.0	330.0

Test No.	Description	Before Immersion.	After 24 hrs. Immersion	Difference	Absorption	
		lbs.	lbs.	lb.	per cent	
2198	A4	7.795	8.422	.676	8.74	7.73
2199	as above. A5	7.806	8.445	.619	7.91	
2200	B4	8.243	8.782	.539	6.54	
	D.S.					

Summing up this table you will find that the bricks withstood an average of 5,132 pounds to the square inch, the average base area being 39.61 and the results as to porosity showed an average of 7.73%. Calculation is based on a 24 hours' immersion. You will doubtless realize how excellent these results are. Mr. Brand's plant is the only one in Scotland now running. Another plant was established at Bathgate, promoters having a scheme of mixing asbestos with the sand. I saw several buildings built with artificial stone from this plant but they were crumbling away, which gives the sand lime brick industry a setback in that part of the country. A friend of mine owned a large interest in this plant, but he stated to me that it was a complete failure. There are but three plants that I know of in England and two of the three are running. Two of them I visited. One near Liverpool, called the Hydraulic Brick and Stone Co. The plant is erected for the system known in this country as the Schwartz process. The sand that is used is a little like our Michigan City sand, namely, blown up by the sea into sand dunes, and has all the unfavorable conditions incident to a blown sand. This plant has been idle for a year and is for sale.

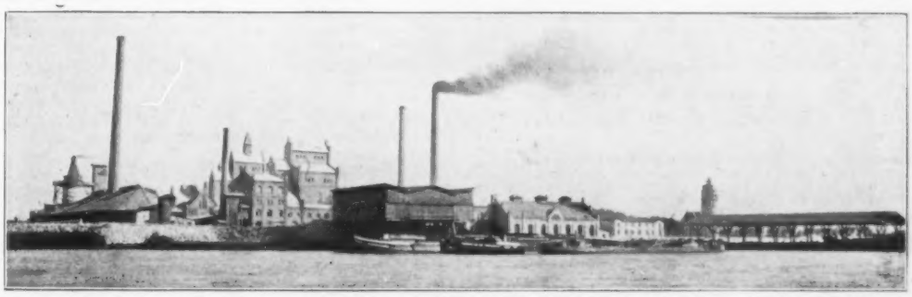
The other plant I visited was that of "Colliers Limited," at Reading, near London, but it was merely an incident to their clay works, which is quite extensive. At the time of my visit they were making a black brick, using bone black dust. They use the prehydrate system, slaking the lime in the cylinders below the cars. The business is not at all extensive, as they are unable to sell their product in London in competition with clay brick.

The sand lime brick industry has not, as a general thing, proven successful in the British Isles. The reasons for this are that there are immense deposits of first class clay in England, bricks being produced and sold at a very low price, and in Scotland the drawback is that extensive stone quarries are plentiful and therefore stone of various kinds for building purposes is sold very cheap.

Passing over to the continent, the first plant I visited was near Zurich, Switzerland, the owners of the works being Hunsicker & Co. They are about twenty miles from Zurich. Notwithstanding that I had a card of introduction to Mr. Hunsicker from an influential party, I was denied admittance to a large proportion of his works. He showed me only the lower floor of his factory. They have two double mould rotary presses and one single mould rotary press, making 20,000 a day on each of the former and 10,000 on the latter. They have also seven hardening cylinders. The bricks made there were excellent in quality, which I ascribed quite largely to the nature of the sand. The sand bank is really a gravel deposit. They screen the stones out of the gravel for cement products, the sand being retained for sand lime brick. The examination of his sand showed great variability of grain and also sharpness, and this favorable condition showed its effect on the product.

My aim in traveling in Europe was to delay my investigation of the sand lime brick industry until I had arrived at Berlin, which is the real center for sand lime brick manufacture. I am pleased to state that I was quite successful in obtaining the proper introductions and entree to five different works in and around Berlin. These introductions were due largely to the courtesies of the "Tonindustrie Zeitung." That newspaper is the leading organ for the sand lime brick industry in Germany. It is a remarkable publication, having three issues per week, and their establishment consists of a complete corps of editors, representing the various interests, the sand lime brick department being in charge of Mr. B. Krieger, and I can fully attest to the uniform courtesy extended to me by that gentleman, and also Mr. Waldner, of the cement and lime department. That gentleman showed me through the establishment, which was well worth seeing. They have an immense laboratory with fourteen chemists at work testing all manner of material for the production of brick of all kinds and clay goods in general. There is no disposition of that newspaper to side track or to minimize the importance of sand lime brick manufacture. As a matter of fact, it would be exceedingly strange if they would not recognize an industry that has upwards of 350 different plants making sand lime brick in Germany. It is of great importance, however, that a paper of the prominence and influence of the "Tonindustrie Zeitung" should follow up every possible item in connection with the development and production of the sand lime brick business.

Mr. Krieger gave me an introduction to a gentleman who is recognized as the foremost authority on the technic of sand lime brick in Europe. That gentleman is Mr. George Bell. I was pleased to meet the gentleman in Berlin and to have a lengthy conversation with him, and I was quite impressed not only with the knowledge of the business that this gentleman has, but his uniform courtesy to a complete stranger to him as I was, it being sufficient for him that I represented a member of this association and also to some extent of the sand lime brick industry in this country.



GENERAL VIEW OF THE BERLINER-KALKSANDSTEINWERKE, ROBERT GUTHMANN, AT NIEDERLEHME, NEAR BERLIN, GERMANY.

There is one part especially of my conversation with Mr. Beil that I desire mentioned here. You will notice that a table given by Mr. Robert Brand, of Perth, Scotland, giving the crushing strength of his brick, states the base area of the samples. I cannot recall a table showing strength of brick before in my reading that gives the base area of the brick tested. It has been generally considered by manufacturers in America that the strength of the brick made in Germany was very much inferior to those made in this country. Mr. Beil, however, stated that the cause of this impression was due to the manner of testing our brick in America. We test the brick for crushing strength on its flat, using the surface of the whole brick, but this is not the method in Germany and France, and possibly other countries in Europe. In

P. L. SIMPSON, AMERICAN CLAY WORKING MACHINERY COMPANY, CHICAGO, ILL.

Germany they divide the brick in two and place one-half above the other, the joints all being made solid by plaster of paris or sulphur. By halving the brick it makes a difference, according to Mr. Beil, of 30% in the result. Thus, if the brick is tested as it is in this country, namely, with the entire area of the brick, and it would show a strength of 4,500 pounds to the square inch, by cutting it in two and testing it as they do in Germany, the strength apparently would be reduced about 1,350 pounds. Mr. Beil, therefore, desires to have this understood, especially by this association, that in comparing the strength of brick made in Germany with those made in this country that the difference in the method of testing should be taken into consideration.

Mr. E. Leduc, author of the "Essais Sur le Silico Calcaire," pages 19 and 21, uses a round sample of sand lime brick in arriving at crushing strength. His rule is to use the cylinder the height of which was exactly equal to the diameter, and Mr. Leduc goes to considerable trouble to obtain this condition. I was very glad to receive this explanation from Mr. Beil, so as to make it possible for me to use my influence in correcting this unfair and unjust comparison.

In Germany there is an institution known as the "Verein der Kalksandsteinfabriken," which is a union of sand lime brick manufacturers and which maintains a regular office in Berlin for the purpose of promoting the industry in Germany. The essential requirement for admittance to that union is to produce brick having certain strength and quality. That strength is 140 kg. per sq. cm., which is equivalent to very nearly 2,000 lbs. to the square inch.

Mr. H. Buchartz, of the Department for the examination of building material at the Royal Bureau for testing material at Gross-Lichterfelde-West, makes the following statement in his book on sand lime brick, published in 1908: "Experience has proven that with a practical equipment and proper method no difficulties arise to manufacture sand lime brick with a strength of 140 kg. per sq. cm. Therefore, the association of sand lime brick manufacturers puts its members under obligation (in 1903) to manufacture sand lime brick having a minimum crushing strength of at least 140 kg. per sq. cm. Many factories, however, produce sand lime brick with a crushing strength up to 300 kg. per sq. cm. and even more."

The Sand Lime Brick Association also uses for its own protection a trade mark which is an equilateral triangle with the words K. S. V. printed therein in large letters. These letters indicate the initials of the name of their association, namely, the "Vereins der Kalksandsteinfabriken," and this trade mark is printed on the envelopes and letterheads of the association, and is sometimes stamped on the bricks. The members of the association are, therefore, under obligation to produce sand lime brick with this minimum crushing strength, and should a manufacturer fail to fulfill this requirement, he forfeits the right to use the trade mark until evidence has been furnished to show that the standard has again been reached. The annual dues paid by each member is based upon the quantity of brick produced. From one to ten millions production the dues are twenty marks per million; from eleven to twenty millions, twelve marks per million; from twenty-one to thirty-five millions, six marks per million; the maximum is 410 marks per year. The various committees appointed by the association are:

1st. Committee on new processes, machines, etc.
2nd. Committee on rules and regulations.
3rd. Committee on publications.

The association has been one of great influence in the development and improvement of the sand lime brick industry, not only in Germany but all over Europe. Its active membership, each one representing a sand lime brick factory, consisted in June, 1910, of 78 members. There are sand lime brick factories even in Berlin that are not eligible for admission into the union, for the reason that they are not complying with the requirement of the association in regard to the strength of their brick. In all fairness, however, and after a thorough examination of at least one of these outside concerns, I found that the fault was not due to their process or their machinery, but to their sand. In fact, one of the best plants I visited in Germany was outside of the association and produced a brick that was not up to the standard in strength, but they simply had been unfortunate in selecting a location close to the market, of course, but with a sand that was very inferior and therefore an inferior production was the result.

Touching on the question of lime, fortunately for Berlin there are immense deposits of limestone at Kalkberge near Ruddersdorf which is about thirty miles from the city and accessible by water. It is a lime somewhat hydraulic in its nature, having a considerable percentage of silica in its composition, but quite free from magnesia.

This lime is burnt in continuous kilns of the Hoffman type. Very large works have been erected at Kalkberge and one prominent brick works in the neighborhood of Berlin burns their own lime. I refer to the Berliner Kalksandsteinwerke-Robert Guthmann. They have a twenty-six chamber continuous kiln, Hoffman type, burning 100,000 kg. of lime per day, which is equal to about 110 tons.

Through the courtesy of the secretary of the union of sand lime brick manufacturers I was enabled to obtain the entree to three of the five sand lime brick works that I visited in and around Berlin. These three establishments represented three different processes. The first works I visited was erected about eight years ago. The sand was of good quality and the lime was obtained from the neighboring limestone deposits at Kalkberge. The characteristic of this establishment was mainly the method of treating the lime, which is known in Germany as the "Loeschtrommel," or slaking drum process, and which consisted in this particular case in slaking all of the lime and one-third of the sand in a slaking drum. This makes an excellent basis for the remainder of the sand to be mixed later in a wet pan. These works have two double mould rotary presses, each making 32 bricks per minute, or an average of 18,000 per day each, running 10 hours per day. Caustic lime was pulverized to about 60 to 80 mesh which was not as fine as the superintendent would have desired. My impression of the plant was excellent, although in some respects it was not ideal, because there was some guess work in the process, inasmuch as the uniting of the remaining portion of raw sand with the drum mixture was done by two men shoveling both the drum mixture and the raw sand into an elevator to be elevated to the wet pan. Notwithstanding this drawback, however, the plant was well managed. Everything was in fine order, and with this defect corrected, which was acknowledged by the superintendent as being a defect, the plant would certainly be an excellent one. The slaking drum idea appealed to me as being correct in principle, free from dust, systematic, and in many respects an improvement over some of the other plants that I subsequently visited.

The next establishment that I visited in the same neighborhood was based upon the purely silo process,

In this case the raw sand and pulverized lime was automatically measured, although the means of performing the measuring of the sand and lime did not appeal to me as being first class, same means having been in use in some works in this country, which afterwards proved a failure. They seem, however, to stick to the idea. Aside from this the works were well built, and especially the silos appealed to me as being most substantial. Wooden silos seem to be a thing of the past in modern plants in Germany, and the silo I saw at the works under review was constructed of steel, supported on substantial cast iron posts and emptied automatically and regularly. They had upright presses in this plant, using three men for off-bearers. One man was busy putting in a sheet steel pallet, and the other two men taking the brick off the pallet, as delivered by the pallet handler. This seemed to me one man too many at each press. They have five hardening cylinders and keep their brick in the cylinder for twelve hours, at a pressure of 8½ atmospheres. Please note the twelve hours in the cylinder, as it would seem to me to be the tendency in Germany to increase the time for bricks to remain in the hardening cylinder, and also to increase the pressure.

The next plant I visited was again different, in which they also had the "Loesch-trommel" or slaking drum, but in this case the lime only was slaked without any sand being added. This process did not appeal to me as being an ideal system. The contents of the slaking drum were dumped into a bin below, and which caused a terrible dust all over the works. In fact, it was the dustiest works I visited. Quite a quantity of the lime blew out of the slaking drum when the pressure of steam rose up to the point where it was necessary to relieve the pressure. A pipe was led from the slaking drum to a separate room some distance away, where an attempt was made to collect the lime blown from the slaking drum into that room, but the outfit and its operation appealed to me to be quite awkward and anything but ideal. Then again, another bad feature of the works was the amount of guess work used in adding the amount of lime to the sand. A large proportion of the sand was gravelly. The stones were taken out by a revolving screen, and was conveyed on a shaking conveyor to an elevator, and while being conveyed a man shoveled the lime onto the sand according as in his judgment would be necessary. This was the most unique specimen of guess work I ever saw in any sand lime brick factory, and I was surprised that such a method was used in a representative plant. Notwithstanding these drawbacks, which were very conspicuous, the plant made fairly good brick and was evidently a money maker, as the production was about 25 millions per year. The sand, however, was excellent, which no doubt had a corresponding effect on the quality.

The next plant I visited was in my opinion an improvement, in a great many respects, to any of the others that I had examined. In this case all of the sand went through the slaking drum. One-half of the sand was used with all of the lime, and after the lime was slaked in the slaking drum the remaining portion of the sand was added. This plant, however, was handicapped by poor material, and the poor brick resulting from their poor sand excluded them from the union. At all events, this was the reason I received for their not being in the union. The material, after passing through the slaking drum, is stored for a short time, but in this case the silo or bin was a wooden one, which was not exactly in accordance with the best practice.

Now, it was my privilege and great good fortune to obtain permission to visit the largest and best known sand-lime-brick works in the world, namely, that of the Berliner-Kalksandsteinwerke, Robert Guthmann. These works are at Niederlehme. They have twenty upright presses, each making two brick at each pressure, but only two men in this case were used as off-bearers for each machine. I was taken around the plant by Mr. Mohnike, the works manager. The locomotive brings 10 dump cars, each containing about two cubic yards of sand from the sand deposit—the cars being of the bottom dump type—and in less than five minutes they are emptied into the cellar below the track, to be shoveled into the elevators leading up to the mixers. The lime is pulverized to the requisite fineness and united with the sand—both being automatically measured. This plant has adopted the silo process. There are eight silos in the plant built of steel, in a most substantial manner, each containing enough material for 80,000 German size bricks. The stored material receives its proper quantity of water in the wet mixer and emptied into buckets, which run on an overhead track and are emptied into the different bins located above each press.

There are two cylinder rooms, one containing eleven, and the other nine hardening cylinders, the size of same being 20 meters (about 65' 6") long by 1 M 80 (about 70⅝") in diameter, each cylinder containing 13 hardening cars and having a capacity of 9,000 brick—German size, which is 250 M M long by 120 M M wide by 65 M M thick, or 9⅞" by 4¾" by 2⅝".

A very interesting feature of the works are the two very large transfer rooms, each of them over 80 feet wide and containing a transfer car about 85 feet long. These transfer cars hold all of the contents of a cylinder, and also the locomotive that hauls them, either out of the cylinder in the case of the hardened brick, or into the cylinder in the case of the green brick. When the bricks are hauled out of the cylinder by the locomotive, they are run down to the wharf. The bricks are at this point unloaded and sorted from the hardening cars and packed into barges, each containing about 100,000 brick. These boats are then towed to the receiving and shipping station at Charlottenburg, Berlin. In the event that there are no barges on hand into which to load the bricks, they are stored on the yard, to be eventually shipped when necessary. When the barges reach Charlottenburg, the bricks are then unloaded into truck or wagon frames. These are made of steel and arranged so as to be hoisted by electric cranes. Each frame contains about 1,100 brick, which is the established unit. There are about six of these cranes that can be applied when necessary. They all overhang the river and an empty frame may be attached to each one of them, same being lowered down into and loaded from the barge, then hoisted up and run over to the point to be lowered onto the wagon bed and then to be hauled to the building. These six cranes cover about the length of the barge, and therefore the unloading of the boat is accomplished in a very short time.

While in some respects, especially at the unloading and receiving depot at Charlottenburg, this method of handling is ideal—I refer especially to the loading of a unit of brick onto portable steel truck frames—yet it is in the loading of the barge at Niederlehme and the unloading of the same into frames at Berlin where a great saving of labor could be effected.

At the docks at Niederlehme, the bricks as they are sorted are run down a runway to the hold of the barge, where they are caught by the loaders and packed. Then again when the barge reaches its destination manual labor is again necessary to load the bricks from the barge on to the steel truck frames, also when it is required to store the bricks on the yard, which frequently happens, another double loading is required, making in that case four separate handlings of the brick. Further, when it is required to store the brick at the receiving depot at Charlottenburg, a further double handling is necessary, so that when this extreme case happens the same brick are handled by hand six different times. This would seem not only to be a waste of labor, but every time a sand lime brick is handled or any other brick for that matter, they are apt to be chipped and many poor brick produced that would otherwise not be the case.

Now, if such a method as the "Penfield Brick Handling System" were adopted, the labor of handling the brick would be reduced at least one-half to two-thirds. Just imagine what a saving would be effected by such a system, especially in a yard where there are 440,000 brick manufactured daily, as is the case in the works under review.

It may be interesting to detail to you as briefly as possible how such a great saving can be effected, and which will at the same time give you an insight into the merits of the "Penfield Brick Handling System." First of all, the bricks could be sorted off the hardening cars at the wharf and packed into the necessary units, which in this instance is 1,100 bricks, these units having the proper length, width and height as may be required to fit the steel truck frames at the receiving and loading depot in Berlin. The "Penfield Brick Handler" would then lift each unit by an electric crane, which of course would have to be erected at the wharf, these cranes to be designed with projections overhanging the scows on each side of the pier. These units would be lifted by a brick handler and lowered down into the hold of the scows, then when the latter reaches the receiving depot they would be in exactly the same condition as they were when loaded, and would then be lifted out of the barge by the electric cranes and lowered either on to the bed of the wagon to be hauled to the building, or placed into the storage room at the depot. The unit, you will notice, remains intact from the time the bricks are sorted at the wharf at Neiderlehme until delivered at the building in Berlin. Further, when storage is necessary on the yard, the unit is still preserved after the bricks are sorted and may be piled on the storage ground by cranes, and it would not be necessary to cover so much ground as is now the case, because they could be piled as high as a crane would permit. One can at once realize how great a saving can be effected in handling brick in this way.

Now, to sum up my impressions of the sand lime brick industry in Europe and especially around its chief center of Berlin, Germany.

First. From personal observation and from all information that I could gather from experts in the business, I concluded that the prehydrate system was gradually being eliminated from up-to-date practice. There are no new works installing the process and works that are still using it are gradually abandoning it. I interviewed Mr. Beil at his office in Berlin in this way: Which is your preference in regard to the following five different methods of making sand lime brick?

"A." Hydrating the lime in slaking tubs under brick cars in cylinder.

"B." Hydrating the lime in a slaking drum without sand.

"C." Hydrating all of the lime with part of the sand in a slaking drum, afterwards adding the remainder of the sand outside of the drum.

"D." Hydrating all of the lime with part of the sand in a slaking drum, afterwards adding the remainder of the sand inside of the drum before latter is emptied.

"E." Hydrating the lime with all of the sand in silos.

Mr. Beil, without hesitation, stated that the two latter methods were the only proper and correct systems to install.

The attitude of the experts I talked to in regard to the method of slaking the lime in hydratic boxes underneath the brick cars in the hardening cylinder was that it was unreliable, wasteful and entirely out of date.

Second. All of the latest works erected in Germany—as far as I was able to find out—were recognizing the principle of the thorough mulling and kneading of the sand and lime mixture by using wet pans where the mixture receives the final water, and all of the grinding incidental to the system.

In all the works in Germany that I visited no face brick were made. All of the production are common brick, but a hard solid body is requisite and always aimed at, and therefore the use of the wet pan to attain this object is thoroughly appreciated in Europe as well as in this country. I was much pleased to note that the necessity for using a wet pan in the proper preparation of the material, which is in accordance with the latest ideas in this country, is also recognized abroad as well as here.

Third. I was also much impressed by the fine management of the different works I visited. I can account for this by the further impression I received that the industry is in the hands of high grade men, those having charge of works and experts in general with whom I came in contact and I had the good fortune to meet were all unusually able and finely educated, and the courtesies shown to a stranger like myself showed that they were gentlemen both by nature and training.

I was glad to meet such men as Messrs. Beil, Krieger, Waidner, Brockhous, Mohnike, Michel, Brand, etc., and I may say here that these men are among the leaders in Europe, having the present and future interests of the sand lime brick industry in charge.

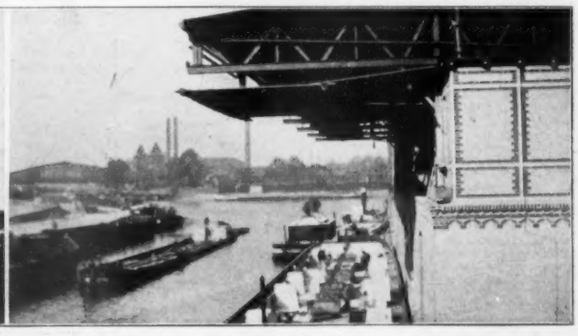
I purposely stopped off at Paris on my way from Berlin to London to interview Mr. E. Leduc, author of the work "Essais Sur le Silico-Calcaire," but I was unfortunate in not seeing him, as he had left Paris to take charge of a Portland cement plant at a point somewhere near Nice, in the south of France. I mention this because there is great respect shown to the name of Leduc in Germany, so much so that Mr. Krieger, of the "Tonindustrie Zeitung," has translated his work on sand lime brick into the German language. No one in Europe has gone into the subject with greater care theoretically than Mr. Leduc. I visited the "Conservatoire National des arts et Metiers" where he did his experimenting and was introduced to his successor, whom I was glad to meet, and he stated that he expected to follow up the valuable work of his predecessor.

Fourth. I was also impressed with the great care shown by the owners of the various sand lime brick works in looking to the comfort of their men, in providing proper dwelling houses and pleasant surroundings. This was best illustrated perhaps at Niederlehme, where the workmen have pleasant homes to live in. Mr. Mohnike, the works manager, has a beautiful home of very fine architecture, which you can see by the photograph reproduced herewith. The water tower of the Robert Guthmann Works is one of the most artistic of any I saw in Europe. It is modeled after a celebrated tower in Constantinople and is about 160 feet high by about 35 feet in diameter, and is built of sand lime brick. You can see by the illustration what a beautiful structure it is. Mr. Edison's late dictum and poor opinion of German architecture was not my impression. No one could sojourn in Germany, visiting such cities as Nuremburg, Munich, Frankfort, Dresden and Berlin, without being greatly struck with the artistic character of the architecture.

Finally, I am glad to be able to state that the sand lime brick industry is thoroughly established in Europe, and has a splendid future before it.

RESIDENCE OF C. MOHNIKE, WORKS DIRECTOR OF THE BERLINER-KALKSANDSTEINWERKE.

WATER TOWER AT THE BERLINER-KALKSANDSTEINWERKE.



RECEIVING DEPOT AT BERLIN OF THE BERLINER-KALKSANDSTEINWERKE.

The Audubon Construction Company, of Manhattan, has been incorporated to do construction work and real estate business, with a capital stock of $150,000. The incorporators are: J. J. Dreyfus, S. Ginzbourger and N. Noss, all of New York City.

The Henry Crobert Company, Inc., of East Orange, N. J., has been incorporated to carry on a bulding, contracting and real estate business, with a capital stock of $50,000. The incorporators are: H. Crobert, E. W. Crobert, of East Orange, N. J., and W. J. Pain, of Newark, N. J.

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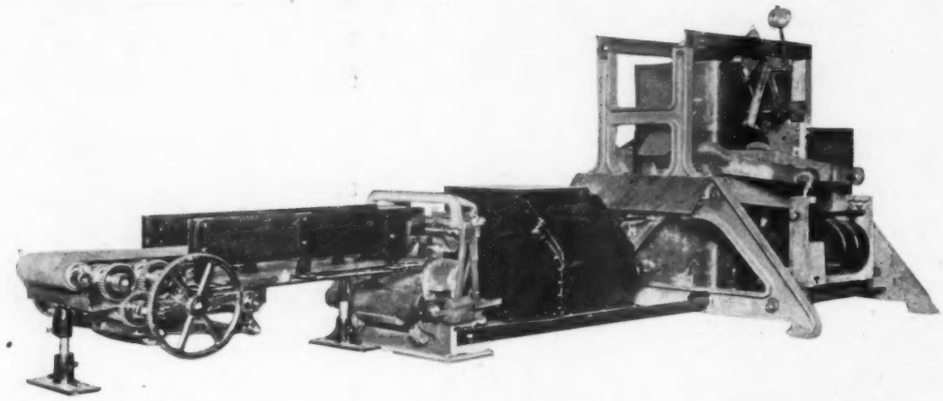

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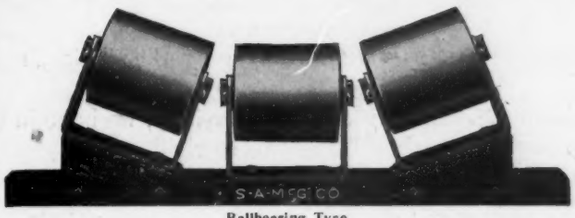

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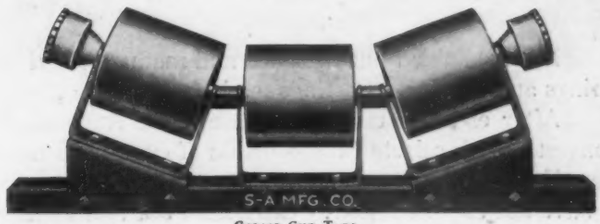

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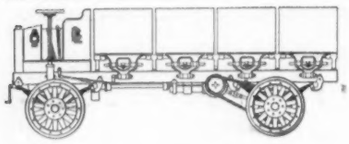

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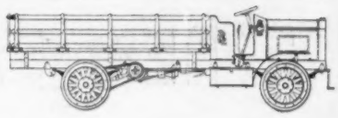

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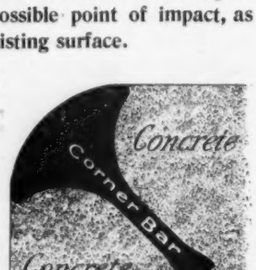

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QUICK LIME

Fourth of a Series of Articles For the Information of Dealers Who Sell the Products of the Kiln.

The series of articles on the various uses of lime inaugurated in this department three months ago has attracted much attention among dealers, especially those who desire to accumulate as much knowledge as possible concerning this important item of their business. It is intended as a help to the dealer in selling lime, and it is the hope that in this series of articles he will gain many selling points that will enable him to sell more lime than he did before he had this information. The article this month is on the subject of quicklime.

Quicklime is usually sent to market either in barrels or in bulk form, or, in some localities, ground to a coarse meal and packed in bags. In all cases it must be slaked before it can be employed as a matrix for mortar.

Two methods may be employed in this slaking, but the first is perhaps the more commonly employed in the United States.

The first or ordinary method, termed "drawing" for the excessive quantity of water sometimes injudiciously employed, consists in pouring upon the lumps of lime collected together in a layer of uniform depth not exceeding six to eight inches, either in a water-tight wooden box or a basin formed of the sand to be subsequently added in making mortar, and coated over on the inside with lime paste to render it impervious to water, a sufficient measure of fresh water to reduce the whole to the consistency of a thick paste. It is important that all the water required for this purpose, especially with the high calcium or so-called "fat limes," which for the different limes will vary from two and a half to three times the volume of the quicklime, should be added at the outset, or, at least, before the temperature becomes sensibly elevated. In this condition the lime will remain entirely submerged and comparatively quiescent, until after an interval of ten or twelve minutes the water becomes gradually heated to the boiling point. This heating is due to the chemical combination of the quicklime, or calcium oxide, and the water thereby forming lime hydrate, or calcium hydrate. At this stage the mass begins to boil and violent ebullition takes place, during which a quantity of steam is liberated and the lumps of lime break up into a fine powder, which, dissolving, so to speak, form a creamy paste known as "lime putty." During this change into the paste a large increase in volume results and the "slake box" is quite full.

This process of slaking is liable to get abuse at the hands of workmen who are not familiar with the various kinds of lime and the different ways in which the same lime may vary. They are apt to use either too much water, thus conferring upon the slaked lime a condition of semi-fluidity, and thereby injuring its binding qualities, or, not having used enough in the first instance, they seek to remedy the error by adding more after the slaking has well progressed and a portion of the lime is already reduced to a powder, thus suddenly depressing the temperature and chilling the lime, which renders it granular and lumpy.

Another precaution of equal importance is not to stir the lime while slaking, but allow it to gradually absorb the water by capillary attraction and its natural affinity for it, taking care that all portions are supplied with it to that degree requisite to produce a paste of the slaked lime, and not a powder.

The second method of slaking consists of sprinkling with water or suspending the quicklime in water by some means or other for one or two minutes, taking care to withdraw it before reduction to powder commences. The lime should be quickly heaped together and covered up, in order to concentrate the heat and prevent the escape of water vapor. In this condition it soon begins to swell and crack, and finally becomes reduced to a fine powder. This powder, or lime hydrate, may be preserved for some time without deterioration if packed in some sort of container and kept from direct contact with the atmosphere.

This process is used quite extensively abroad, but has never met with much favor in this country because of the expense attached. However, the powder formed in this way, when subsequently mixed with water and sand, gives a much stronger mortar. As a result of this, mechanical means or machines have been devised, until now the manufacture of a dry "powdered lime putty," known to the trade as hydrated lime, is quite an industry. When lime is prepared in this way, careless workmanship is largely obviated, for the slaking process is taken out of the workman's hands. The writer knows of several brands of quicklime which, when slaked by method No. 1, yield a mortar which will not make a bond with brick, yet when dry-slaked as in No. 2 yield a mortar as strong as natural cement. This brings us to hydrated lime as it reaches the trade today, and a brief discussion perhaps will not be out of place here.

NATIONAL LIME MEETING, FEBURARY 1 AND 2— NEW ASTOR HOTEL, NEW YORK.

Every lime manufacturer of the United States is vitally interested in the official announcement presented below telling of the annual meeting and sending up the rallying cry of "On to New York." None can afford to miss this meeting and to hear of what the association has accomplished for the good of all during the past year and what campaigns are laid out for the future. President William E. Carson puts the case right up to you in the following call:

To the Lime Manufacturers of the United States, Greeting:

As the end of the year approaches, and the time has arrived when we must take stock of our year's business and efforts, it is to be hoped that the lime manufacturers of the United States will feel they have not retrograded but advanced, advanced not only pecuniarily, but in the knowledge of the business, enlargement of ideas, and general improvement of plant and methods of manufacturing.

The lime manufacturers as a body are awakening to the gospel which the National Lime Manufacturers' Association has been preaching for years, that unless they become militant, put on the breastplate of progressiveness and throw aside the tyranny of preconceived ideas that has generally pervaded both the manufacturing and selling end of the lime business, falling into step with modern conditions, they will find themselves as much out of it as a state-wider at a brewers' convention. That our fears have been realized it is but necessary to have a heart to heart talk with any lime manufacturer in regard to cement and hard wall plaster, and what these people have and are trying to do to the lime business, and if the National Lime Manufacturers' Association had not taken the initiative the name of the lime business today would be "Dennis, how come you so?" As it is, the lime manufacturing industry has crossed the peak of the hill, or at least those members of it who have been following the suggestions, meetings, etc., of the National Lime Manufacturers' Association, and are the only people in the business who are getting remuneration to a proper degree for their investments and work.

For years we have been inviting the lime manufacturers of the world to attend our annual meetings "without money and without price," hoping they would realize the benefit to be derived therefrom, and to help to build up the organization.

The organization is strong enough to stand by itself, and it has now come to a place that we say to those manufacturers who are not willing to join us and pay the measly sum of $25.00 initiation fee, which covers the first year's dues, to stay away—outside of the association is where they belong; they are the losers and not the National Lime Manufacturers' Association; we can get along without them; they cannot get along without us.

Within the last year the National Lime Manufacturers' Association has issued the following bulletins to its members: "The Development of Hydration in 1910," "Soil Fertility and Its Relation to Continued National Prosperity," "Some Phases of the Relation of Lime to Soil Improvement," "The Position of Lime in the Chemistry of the Soil," "The Folly of Price Cutting," "The Possible Effect of Alca Lime Plasters and Cements on the Lime Trade," "The Function of Advertising in Extending an Industry," "The Use of Hydrated Lime in Portland Cement Mixtures," "Tests of Cement Lime Mortars," "A Lime Manufacturer's Experience with Gas as a Fuel, and the Gas Producer as Applied to the Manufacture of Lime," "The Big Drill," "Tests of Lime," "The Science of Building Any Business," "The Theory and Phenomena of the Gas Producer as a Piece of Apparatus and as Applied to the Lime Kiln," "The Burning Temperature of Limestone," "Price Arrangements and Agreements," "Plant Foods," "The Manufacture and Properties of Hydrated Lime," "Sweetening the Soil," "Raising Grain," "Texture of Soil," "Lime on the Farm," "Properties and Uses of Hydrated Lime," "The Use of Lime as a Fertilizer."

These are some of the bulletins, each one bearing directly on the lime business, that those manufacturers who thought more of $25.00 than the best information possible to obtain have missed this year, and the following are some of the papers that will be offered at the annual meeting, which will be held in the New Astor Hotel, New York, February the 1st and 2d, 1912: "The Use of the Rotary Kiln in the Manufacture of Lime," "Gas Producers and Gas Lime Kilns Particularly for Natural Draft and Natural Pressure," "Costs and Problems Relative to the Big Drill Hole in Quarry Work," "Relative Comparison in Powder Cost and Loading Instructions Connected with the Big Drill Hole," "What We Don't Know About Lime," "Is the Recommendation That Only Ground Limestone Should Be Used for Agricultural Purposes a Sound and Rational One?" "The Target For the Reduction of Lime Manufacturing Costs," "Suggested Methods for Improving Kiln Economies," "The Hydration Problem to Date," "The Testing of Commercial Limes," "Heat Efficiency of Lime Kilns," "The Rate of Decomposition of Limestone Under Heat," "Should the Lime Manufacturer Submit to the Deterioration in Transit Clause Which Large Consumers are Demanding to Be Put in Contracts?"

There will be several other papers covering subjects of intimate and great value to the lime industry, so that this meeting will be by far the best ever held. The papers offered are by the best talent in the lime industry, and each one intrinsically will be worth ten times the cost of initiation fee. If you want to attend this meeting, and are not a member of the National Lime Manufacturers' Association, sit down and write your check for $25.00 and send it to Col. C. W. S. Cobb, Treasurer, Syndicate Trust Bldg., St. Louis, Mo., and attend the meeting. If, when the meeting is over, you are not perfectly satisfied he will return your check to you; he is easy.

It is unnecessary to more than sound the bugle blast to the members of the National Lime Manufacturers' Association, to know that they will all be on hand, as they realize the value of the meetings. Let me suggest that you do not come alone—bring your superintendent; it will be the best spent money you ever invested. It stimulates him to greater effort and gives him a viewpoint he otherwise never could obtain on the business. All the live wired "Limies" will be there.

WILLIAM E. CARSON, PRESIDENT,
NATIONAL LIME MANUFACTURERS' ASSOCIATION.

LIME STATISTICS FOR THE YEAR 1910

The following statistics, which were prepared by Ernest F. Burchard, of the Department of the Interior, U. S. Geological Survey, show a decrease in tonnage but an increase in value:

The total production of lime in 1910, as reported to the United States Geological Survey, was 3,481,780 short tons, valued at $13,849,962, as compared with 3,484,974 short tons, valued at $13,846,072, in 1909. This represents a slight decrease in tonnage of 3,194 tons, and an increase in value of $48,890. The average price per ton in 1910 was $3.99, as compared with $3.97½ in 1909, or an increase of 1⅞ cents a ton. The total number of producers reporting in 1910 was 1,125, as compared with 1,234 in 1909, a decrease of 109. This apparently large decrease in the number of producers was due partly to the inactivity of a number of small kilns operated by farmers for burning lime for local use as fertilizer, and partly to the abandonment of old and worn-out kilns. The heaviest decrease in the number of producers was in Pennsylvania, but Porto Rico, Maryland, West Virginia and Wisconsin showed marked decrease. In 1909, forty-four states, including Hawaii and Porto Rico, reported production of lime; in 1910 Nevada failed to report a production, leaving forty-three states as producers. The five leading states in 1910 were, in the order of their production, Pennsylvania, Ohio, Wisconsin, Maine and Missouri. Pennsylvania produced 877,714 short tons of lime in 1910, valued at $2,440,350, the average price being $2.78 per ton. There were 572 active producers in Pennsylvania, including a considerable number of farmers who produced only a few hundred bushels each for fertilizer. The Pennsylvania production represented a decrease in quantity of 3,725 short tons, and in value of $92,104, as compared with 1909, the price falling 9 cents per ton. In Ohio 415,285 short tons were reported in 1910, valued at $1,647,335, representing an increase in quantity of 71,531 short tons, and in value of $405,616. The average price per ton in 1910 was $3.97, an increase of 35 cents over the price in 1909. There were thirty-six producers in Ohio in 1910, as compared with thirty-three in 1909. In 1910 Wisconsin produced 248,238 short tons of lime, quarried from native rock, valued at $959,405, besides 21,000 tons burned from stone imported from other states. The stone imported from other states was mainly high-calcium limestone, the lime from which was used by beet-sugar refiners. The 1910 production in Wisconsin as compared with that of 1909 represented a decrease in quantity of 20,012 short tons, and in value of $108,095. The price per ton in 1910 was $3.86 as compared with $3.98 the preceding year, and there were forty producers in 1910 as compared with forty-six in 1909. Maine produced 179,656 short tons of lime in 1910, valued at $893,599, at an average price of $4.97 per ton, an increase in quantity of 1,092 tons, but a decrease in value of $64,091 and an average price of 39 cents. In 1910 there were seven producers as compared with nine in 1909. In 1910 Missouri produced 179,550 short tons of lime, valued at $846,123, the average value per ton being $4.71. As compared with the production in 1909 this was a decrease in quantity of 2,910 tons and an increase in value of $30,756, with an increase in average price per ton of 24 cents. The number of operators reporting production was the same for the two years.

Quantity and value of lime burned in the United States in 1909 and 1910, by States, in short tons.

1909.

Rank of State.	State.	Quantity.	Value.	Average price per ton.	Number of operators.
15	Alabama	75,268	$290,059	$3.85	16
25	Arizona	12,473	84,223	6.75	4
23	Arkansas	28,065	133,025	4.74	9
9	California	62,942	528,373	8.39	16
36	Colorado	5,024	26,935	5.36	4
11	Connecticut	83,096	405,545	4.88	7
28	Florida	11,358	50,569	4.38	3
29	Georgia	11,903	44,962	3.78	6
27	Idaho	12,631	81,463	6.45	3
10	Illinois	104,260	454,682	4.36	17
14	Indiana	99,325	335,154	3.37	11
26	Iowa	15,780	82,202	5.22	5
42	Kansas	1,332	8,018	6.02	5
40	Kentucky	4,331	13,741	3.17	10
4	Maine	178,564	957,690	5.36	9
12	Maryland	125,436	367,945	2.93	43
6	Massachusetts	136,546	709,128	5.19	8
13	Michigan	83,108	354,135	4.26	12
20	Minnesota	43,841	215,568	4.92	8
5	Missouri	182,460	815,367	4.47	27
35	Montana	4,540	27,713	6.10	5
22	New Jersey	38,014	146,401	3.85	21
39	New Mexico	2,540	14,200	5.38	5
8	New York	134,732	575,220	4.27	36
30	North Carolina	9,881	44,148	4.47	7
2	Ohio	343,754	1,241,719	3.61	33
34	Oregon	3,205	$29,305	$9.14	7
1	Pennsylvania	881,439	2,532,454	2.87	635
38	Porto Rico	3,329	17,277	5.19	29
33	South Dakota	5,369	35,982	6.78	5
18	Tennessee	79,903	251,945	3.15	22
19	Texas	53,578	244,845	4.57	13
24	Utah	16,388	116,992	7.14	15
21	Vermont	42,309	209,941	4.96	11
7	Virginia	164,695	627,946	3.81	48
16	Washington	39,270	282,628	7.20	12
17	West Virginia	89,569	279,263	3.12	46
3	Wisconsin	268,250	1,067,500	3.98	46
44	Wyoming	226	2,756	12.19	3
37	Hawaii			8.71	
43	Nevada			13.00	
41	Oklahoma	25,980	139,053	4.53	7
31	Rhode Island			4.40	
32	South Carolina			5.03	
	Total	3,484,974	13,846,072	3.97	1,234

1910.

12	Alabama	81,606	$303,612	$3.72	14
26	Arizona	12,728	68,055	4.96	4
22	Arkansas	26,532	127,068	4.79	8
8	California	63,769	613,242	9.60	17
31	Colorado	8,057	40,860	5.07	7
11	Connecticut	93,576	417,850	4.47	14
28	Florida	10,482	58,386	5.57	3
35	Georgia	7,621	29,961	3.93	5
29	Idaho	8,094	48,288	5.97	7
10	Illinois	113,239	503,581	4.45	14
15	Indiana	86,811	301,304	3.47	10
25	Iowa	15,481	81,775	5.28	4
42	Kansas	1,510	7,503	4.97	5
39	Kentucky	3,622	12,468	3.44	9
4	Maine	179,656	893,599	4.97	7
12	Maryland	121,555	377,236	3.10	46
6	Massachusetts	140,942	758,739	5.38	10
14	Michigan	72,345	303,377	4.19	10
23	Minnesota	21,020	96,150	4.57	5
5	Missouri	179,550	846,123	4.71	27
36	Montana	4,480	26,925	6.01	4
21	New Jersey	34,148	128,964	3.78	20
38	New Mexico	4,445	17,930	4.03	5
7	New York	146,474	620,564	4.24	37
32	North Carolina	9,952	40,485	4.07	7
2	Ohio	415,285	1,647,335	3.97	36
41	Oklahoma	2,140	9,700	4.53	3
27	Oregon	6,742	65,039	9.65	10
1	Pennsylvania	877,714	2,440,350	2.78	572
40	Porto Rico	2,504	10,160	3.96	19
37	South Dakota	4,151	25,399	6.12	5
16	Tennessee	88,679	275,701	3.10	17
19	Texas	48,200	226,952	4.71	10
24	Utah	15,625	88,030	5.63	13
20	Vermont	38,667	203,606	5.27	9
9	Virginia	141,257	563,567	3.99	48
18	Washington	35,540	267,735	7.53	10
17	West Virginia	90,419	274,205	3.03	37
3	Wisconsin	248,238	959,405	3.86	40
43	Wyoming	143	1,783	12.47	3
30	Hawaii			8.56	
34	Rhode Island	17,641	111,970	8.00	4
33	South Carolina			4.36	
	Total	3,481,780	13,894,962	3.99	1,125

Number of lime-hydrating plants in operation in 1906–1910, by States.

State.	1906	1907	1908	1909	1910
Alabama	1	1	1	3	2
Arizona	1	1	1	1	1
California		1	2	2	2
Colorado		1		1	1
Connecticut	1			1	
Florida			1		1
Georgia	2	1	1		
Hawaii					1
Idaho				1	1
Illinois		1	1	2	2
Indiana	2	2	2	2	2
Iowa	1			1	
Kansas	1	1		1	
Maine	1	1	1	1	1
Maryland			1	1	3
Massachusetts					1
Michigan	1	1	2	1	1
Missouri		2	2	3	3
New Jersey			1	1	
New York	1	2	2	3	
Ohio	8	9	11	8	8
Pennsylvania	8	6	11	9	8
Porto Rico					1
South Dakota					1
Tennessee			1	1	1
Texas			1	3	3
Virginia			1	2	
West Virginia	1	1	1		2
Wisconsin	1	2	2	2	2
Total	30	33	46	50	52

Kinds of fuel used in burning lime, by States and plants.

State.	Kinds of fuel and number of plants.						Mixed and miscellaneous fuels.		Total number of plants reporting.
	Coal.	Wood.	Oil.	Natural gas.	Producer gas.	Coke.	Coal with coke, oil, or natural and producer gas.	Wood with coal, coke, oil, gas, or shavings, etc.	
Alabama	2	2			1	1		8	14
Arizona		4							4
Arkansas		8							8
California		6	5			2		3	16
Colorado	5	1							6
Connecticut	1	3							4
Florida		3							3
Georgia	2	1						1	4
Hawaii			1						1
Idaho	2	5							7
Illinois	2	7						8	17
Indiana	5	1					1	4	11
Iowa	1	2							3
Kansas	1			2				1	4
Kentucky	1	5							6
Maine	1	4	1					1	7
Maryland	30	3				2	4	5	44
Massachusetts	4	3					1	2	10
Michigan	1	10							11
Minnesota		4						1	5
Missouri		13			1			12	26
Montana		4							4
New Jersey	13	2			1		1	1	18
New Mexico	2	3							5
New York	16	6			1		2	2	27
North Carolina		2						1	3
Ohio	13	7		a3	4		2	8	37
Oklahoma		2							2
Oregon		5						2	7
Pennsylvania	396	10	1	2		5	17	69	500
Porto Rico		15							15
Rhode Island	1								1
South Carolina	1								1
South Dakota		4						1	5
Tennessee	3	3			1	2	1	8	
Texas	2	3				1		3	
Utah	7	1					1		
Vermont		8						1	
Virginia	16	10			1	3		12	42
Washington		10							10
West Virginia	14			1	1	3	1	5	25
Wisconsin		42						2	44
Wyoming	1	2							3
Total	543	224	8	8	11	19	31	161	1,005

a Includes 1 plant using also producer gas.

1909.

	Quantity.	Value.	Average price per ton.
Building lime	1,906,146	$8,396,774	$4.41
Alkali works	12,820	39,586	3.09
Chemical works	156,307	535,887	3.43
Paper mills	274,912	971,895	3.54
Sugar factories	13,787	55,079	3.99
Tanneries	72,899	292,258	4.01
Fertilizer	609,356	1,673,349	2.75
Dealers—uses not specified	321,530	1,414,919	4.40
Other uses a	117,217	466,325	3.98
Total	3,484,974	13,846,072	3.97
Hydrated lime, included in total	204,611	904,900	4.43

1910.

Building lime	1,722,488	$7,333,837	$4.26
Alkali works	10,644	40,127	3.72
Chemical works	182,043	696,313	3.82
Paper mills	286,922	1,079,556	3.76
Sugar factories	29,421	239,536	8.14
Tanneries	28,921	133,640	4.62
Fertilizer	585,876	1,739,308	2.93
Dealers—uses not specified	496,930	2,120,685	4.27
Other uses a	138,535	511,960	3.70
Total	3,481,780	13,894,962	3.99
Hydrated lime, included in total	320,819	1,288,789	4.02

a Includes lime for sand-lime brick, slag cement, steel works, glass works, smelters, sheep dipping, disinfectant, manufacture of soap, cyanide plants, glue factories, etc.

In 1910 there were fifty-two manufacturers of hydrated lime, as compared with fifty in 1909, and the production in 1910 was 320,818 short tons, valued at $1,288,789, an average price per ton of $4.02, as compared with 204,611 short tons, valued at $904,900, or an average price of $4.43 per ton in 1909.

The following table gives the value of the total lime production in the United States for the years 1896 to 1910, inclusive:

Value of lime produced in the United States, 1896-1910.

1896	$6,327,900	1904	$9,951,456
1897	6,390,487	1905	10,941,680
1898	6,886,549	1906	12,480,653
1899	6,983,067	1907	12,656,705
1900	6,797,496	1908	11,091,186
1901	8,204,054	1909	13,846,072
1902	9,335,618	1910	13,894,962
1903	9,255,882		

Detailed statistics of the production of lime in 1909 and 1910 are given in the following table:

Hydrated Lime.

The following table shows the number of lime hydrating plants reported to the Survey as operating in the United States during the last five years, and draws attention to the steady development of this phase of the lime industry:

WEST COAST LIME NEWS.

San Francisco, Cal., Dec. 16.—The Western Hydrated Lime Company, organized in this city about three months ago with C. I. Chubbuck as president, now has its plant on Hooper street, between Seventh and Eighth, in full operation. The company is operating a custom mill, which has a hydrating capacity of about 700 tons a month, and is now turning out about 400 tons. It is well located, with spur track facilities and convenient water transportation, and is said to be the only successful hydrating plant now in operation in northern California. The company is now manufacturing hydrated lime for the Holmes Lime Company, which is very well satisfied with the results.

W. S. McLean, sales manager of the Holmes Lime Company, says: "In our 'Diamond' lime business is about as usual. For the last year and a half we have sold every barrel we could make at the top market price. Our brick lime and lime rock trade is about normal. Our well known Vigorite brand of hydrated lime is becoming more extensively used every day for waterproofing concrete, and is specified by the Government for this purpose both on the Coast and in the work at Pearl Harbor, T. H. While a large quantity of Vigorite hydrated lime is used for waterproofing concrete, for brick mortar and exterior plastering, by far the greater quantity is used both in California and export trade as a medium for soil fertilization. We have kept up an advertising campaign for the last four years in the farming community, advocating its use for this purpose, and the result has been a great increase in sales."

The Gabilan Lime Company has been organized at Hollister, Cal., with J. B. Sanford as president, others interested being F. E. Hering, T. A. Bell, J. O. Davis and W. P. McFaul. The company has purchased a lime deposit on the Ludwig ranch near Hollister from the McFaul-Edwards Company, and is said to have placed orders for machinery with the intention of starting a lime plant in the near future.

NEW YORK LIME NEWS.

New York, N. Y., Dec. 18.—There was very little doing in the local lime trade during the past month. Business continued quiet and the dull winter season will soon put the quietus on all building operations. Dealers are pondering upon the outlook for next spring.

F. F. Comstock, president of the Comstock Lime & Cement Company, speaking with reference to conditions in the local lime trade said: "Business continued quiet during the past month, as the building season is practically over, and building material supply men will for the next two or three months experience the usual dull winter season. Collections continued fair. Dealers will overhaul their plants during this slack season and get in good shape for spring business."

E. B. Morse of the Frank B. Morse Company, added: "Sales were fairly active during the past month as builders were rushing work to complete jobs while the weather was favorable. There is very little time for active business to continue as the dull winter season will soon retard building operations."

The Quincy White Lime and Cement Company, of Quincy, Ill., whose plant was burned to the foundation October 18, will be rebuilt and the company expects to resume operations January 1. No part of the old buildings except the foundations will be utilized. The new plant will be of the same size as the old.

STATUTE HELD VALID.

Milwaukee, Wis., Dec. 19.—Brick manufacturers, owners of stone quarries, cement plants, sand and gravel companies, limestone concerns and dealers and manufacturers of all lines of building material in Wisconsin are much interested in the fact that the Wisconsin supreme court has upheld the constitutionality of the new workmen's compensation law passed at the last session of the state legislature. Since the validity of the statute has been determined upon, manufacturers in all lines have been filing their application with the Wisconsin Industrial Commission, which administers the law, to go in under the new act. Among the number were the Standard Limestone Company, Fond du Lac, Wis., and the Janesville Sand & Gravel Co., Janesville, Wis.

The decision of the supreme court was especially notable in that the court broke away from precedent and decided the test case brought by manufacturers, upon the light of present day conditions. It was held that the compensation law was not opposed to public policy, that it is constitutional in most of its provisions and that the legislature had the power to abrogate the defenses of assumption of risks and negligence of a fellow employe, generally made use of by the employer.

The new compensation law is optional for both employer and employe. An employe working under the law is allowed 65 per cent of his wages during the period of total disablement following an injury. When the injury does not disable the employe so as to prevent his working, he receives 65 per cent of his loss in wages. When the employe is totally disabled and so helpless as to require the services of a nurse, the weekly compensation is to be 100 per cent of his wages for three months, at the end of which period it drops to 65 per cent. In case of the death of an employe from injury or accident, when total dependents survive, the employer is required to pay four times the annual wage with a maximum of $3,000 and a minimum of $1,500.

WHERE ROCKS ARE DOLLARS.

How would you like to jingle ten dollars around in your pocket weighing eight hundred pounds?

The Yap dollar weighs eighty pounds, just a few pounds less than the first dollar weighed that you took to the first circus with your girl. But the Yap dollar is over two feet in diameter—26 inches, to be truthful, and we always have to be in money matters, and three inches thick.

It is the standard currency of the Island of Yap. The Yaps come from in the Caroline Islands. Whenever any of the chiefs go broke, or one of his wives wants a new complete trousseau consisting of two ear rings he shouts to a bunch of slaves and they go to the quarry and dig out dollars enough to meet the bill.

The dollars are of crystalline rock, dull white in color and at the center is a round hole.

When the Yap chief wants to save up for new razor blades or the rent he strings these dollars on a pole like beads on a necklace.

One chief, especially affluent, has blown four dollars as wheels for his state carriage.

It is understood that the quarry is a mile long and a half mile deep and is closely guarded by the slaves of the tribe. Missionaries tell us that they have difficulty in taking up collections at their meetings, as no contribution box is large enough.

It is a curious sight to see a workman going home to his shack Saturday night rolling his dollar, his week's wages, like a hoop.

Curious enough, this is the district in which originated the term "rocks" as applied to money. To have lots of "rocks" in Yapland is the same as having plenty of money.

OUR CREED.

We believe in co-operation—work together.

We believe that co-operation is the great productive and constructive principle in modern business.

We believe the development in business through individualism, copartnership, consolidation, is at once the history of profitable co-operation, and proof of its soundness.

We believe that our share in the benefits of any great common increase in co-operative service is larger than we can secure from the same effort individually.

We believe that the angler of old, who fished alone with the hook, found his catch smaller than the individual share of those who joined with others in using a seine.—Builders' Exchange Bulletin of Baltimore, Md.

IT'S THERE IN THE MORNING.

Here is a new idea about a concrete building—to feel every night when you go to sleep that it will be there in the morning. That is the way the editor of the Macon Telegraph feels about it. He has his newspaper installed in a brand-new concrete building. Listen to what he says: "Although the Telegraph has been in operation since 1826, it has never until this year had a building of its own. It has been published in holes in the ground, in garrets, fire traps and other untidy and repulsive places.

"When we were burned out I determined that I would make the insurance company pay for the investment, and accordingly designed the building throughout of concrete; that is, the building containing the mechanical equipment is entirely of concrete, and the insurance rate was reduced from $2.35 per hundred down to 75 cents per hundred. When we go home at night now we sleep, knowing that no matter what happens, short of an earthquake, the plant of the Telegraph will be in operation."

BUILDERS' EXCHANGE ELECTS.

Nashville, Tenn., Dec. 13.—The Nashville Builders' Exchange elected officers for the coming year last Monday. The result was as follows: President, R. T. Creighton, re-elected, no opposition; first vice-president, E. T. Lewis, won out by three votes; second vice-president, A. J. Dyer, re-elected, receiving a majority of sixteen votes; treasurer, John Omman, Jr., re-elected, receiving a majority of twenty-five votes.

The Thos. S. Moran Co., dealers in clay products, sewer and drain pipe, at 150th street and Exterior street, Bronx, has filed a petition in bankruptcy, with liabilities $25,811 and nominal assets $2,871, consisting of stock $1,400, accounts $571, note $400, and lease of yard $500. Among the creditors are the Allentown, Pa., Portland Cement Co., $8,000; Patton, Pa., Clay Manufacturing Co., $6,508; Troy, N. Y., Fire Proofing Co., $4,326, and Lawrence Portland Cement Company, $2,063. The company was incorporated on September 21, 1910, with a capital stock of $10,000 and Thomas S. Moran is treasurer.

Nadeau Extender & Cement Co., organized at Portland, Maine, for the purpose of manufacture and sale of lime, cement, paint, putty, extender and seams compound, with $250,000 capital stock, of which nothing is paid in. Officers: president, T. Nadeau of Lebanon, N. H.; treasurer, Sidney St. F. Thaxter of Portland.

CEMENT

Association of American Portland Cement Manufacturers

Meets Semi-Annually.

OFFICERS

Edward M. Hagar..... President
W. S. Mallory..... Vice-President
John B. Lober..... Treasurer
Percy H. Wilson..... Secretary

R. W. Kelley,
T. H. Dumary,
John B. Lober,
Whitney Newton,
W. H. Harding,
Geo. E. Nicholson,
A. H. Craney, Jr.,
John R. Morron,
Chas. H Zehnder,
Bethune Duffield,
W. S. Mallory,
Edward M. Hagar,
R. W. Lesley,
Frank E. Tyler,
Conrad Miller,
..... Executive Committee

NEW TRIUMPH IN PUBLICITY.

The Association of American Portland Cement Manufacturers has just issued a book under the title of "Factories and Warehouses of Concrete," that without exception is the finest contribution to concrete literature that has yet been published by that association. It sets forth, both pictorially and descriptively, all that has been accomplished in the line of concrete warehouse construction of any note in the United States. The introductory part of the book covers in a sane, straightforward way, the problems presented by the use of concrete in such construction. Its pages are filled with beautiful examples of warehouses in every city of any size in the United States. It is a book that ought to be in the hands of every man interested in the industry.

The arguments these pictures set forth, and the figures given, are invincible, and Mr. Percy Wilson, the secretary, is to be congratulated on the wonderful display set forth. It answers all questions of fire-proofing, and on the last page of the book is shown a group of buildings that have stood the test of fire, and this display more than anything else that could be said, refutes all arguments against concrete. Records show that during the last six years, about 15 buildings have been tested in this way, either by fire occurring in the building itself, or in an adjacent building. In three of the buildings shown in the illustrations, the fires were confined practically to the floors on which they originated, the principal damage occurring was to the stock.

MAKES REMARKABLE RECORD.

New York City, Dec. 18.—Commencing operations early the middle of this season, the Knickerbocker Portland Cement Company, of Hudson, N. Y., has achieved highly satisfactory results. This company already has supplied the government and many railroads with large quantities of its Portland cement which is of the highest quality, exceeding the requirement of standard specifications adopted by the American Society for Testing Materials. The introduction of this cement and placing it on the market has been made in record breaking time.

ONE OF THE SUCCESSFUL LEADERS.

We take pleasure in presenting to our readers a likeness of F. P. Jones, general manager of the Canada Cement Company, Limited, or "Canada Cement Trust," as it is sometimes called.

Every cement man in the United States will be interested in watching the progress made by this company, because it did, and without delay, what seems to have been an impossibility in this country. It found and applied a remedy for over-production and cut-throat prices within a few months after true conditions had been found out, and in a unique way, which it seems was a benefit not only to those who had money invested in cement, but the dealers and users as well.

Mr. Jones is yet a young man—born forty-one years ago in Brockville, Ontario. He was educated at the Royal Military College, Kingston, and first went into business with the D. F. Jones Shovel Manufacturing Company, in Gananoque.

Being ambitious, and having a liking for the steel business, he engaged with the Nova Scotia Forge Company, and later the Dominion Iron & Steel Company, of Sydney, N. S., the largest concern of its kind in Canada. At the end of three and a half years he had been promoted to the position of general sales manager, and from this position to that of general manager of the company, so at the age of thirty-three Mr. Jones was head of Canada's largest industrial institution.

Under his management the steel company prospered and its future looked rosy, when the famous controversy arose between the steel company and the Dominion Coal Company over a contract for the supply of coal. This brought Mr. Jones into the limelight, for, being satisfied that he was right, his way prevailed, and his company refused the coal tendered by the coal company on account of quality. War was immediately declared, and the biggest and most interesting industrial law battle ever fought in Canada followed. Mr. Jones could see it only one way and, according to what the lawyers say, the testimony he gave in the case came near being a masterpiece from a legal standpoint.

After a long and hard-fought battle Mr. Jones won, and while we don't know how many millions of dollars were involved in the suit, we do know that the first check paid by the coal company to the steel company on account was for $2,700,000.

Just about this time the Canada Cement Company was formed, and eleven of the best and most advantageously located plants in Canada were merged. These plants extended practically from coast to coast, and it was at once seen that no ordinary man was needed to whip things into shape, to make money for the stockholders, and at the same time satisfy the public, as well as the handlers and users

F. P. JONES, GENERAL MANAGER CANADA CEMENT CO., LIMITED.

of cement, for this company was destined to become a mighty trust.

Mr. Jones was conceded to be the man the company wanted, and on January 1st, 1910, became its general manager. Immediately the work of permanent organization began, and within a short time the big merger was moving along like clockwork. Prices were immediately adjusted, and at the end of the first and second years again adjusted, and after each adjustment prices were found to be lower than the year before.

To many, these reductions came as a great and pleasant surprise, for the opposite policy was expected, but to others it was different, because they remembered that when Mr. Jones first took hold he said, "We will get our cost down, and we will sell the people of Canada our product, and at a lower rate than was ever sold before on normal basis." So it was just what they expected.

Mr. Jones is a strong, far-seeing, shrewd and able man, thoroughly democratic, and amiable almost to a fault; a slave to his work, yet never seems to be busy; gives every caller a hearing and listens carefully to what he has to say and sends him away smiling. There is no unnecessary pomp or show about Mr. Jones—simplicity is one of his principal charms. He always has a good word and a pleasant smile for everybody from the office boy up, and has a peculiar way of making each of his men feel that the business belongs personally to him.

Those who know him best feel that there is bound to be a place for him in the front row of the world's leaders in the cement industry.

ANNUAL

Meeting of the Association of American Portland Cement Manufacturers Held at New York is Harmonious.

The regular annual meeting of the American Portland Cement Manufacturers was held at the Waldorf Astoria Hotel, New York city, December 11, 12 and 13. The Publicity, Technical Research, Uniform Specification and Statistical committees held their meetings during the first days. The Executive Committee went into session Monday night.

Tuesday was the first regular meeting of the association. The following officers were elected to serve during the year:

Edward M. Hagar, president.
W. S. Mallory, vice-president.
John B. Lober, treasurer.

Executive Committee: C. H. Zehnder, George E. Nicholson, John R. Morron, W. S. Mallory, Robert W. Lesley, John B. Lober, R. W. Kelley, W. H. Harding, T. H. Dumary, A. H. Craney, Jr., Edward M. Hagar, Conrad Miller, Whitney Newton, Bethune Duffield and Frank E. Tyler.

The various committees were highly complimented upon the fine showing they had made, especially the publicity committee. None of the reports, however, were made public. The date of the next meeting of the association was fixed for the second Tuesday in April at Chicago. The regular dinner was held in the evening.

Wednesday morning was devoted to an open meeting and Robert W. Lesley presented his paper on "The Summary of the Proceedings of the German Portland Cement Manufacturers' Association." This was a very learned and able paper characteristic of Mr. Lesley. The next paper was that of J. G. Bergquist, general superintendent of the Universal Portland cement mills, on the subject of "Methods and Appliances for the Prevention of Accidents in Cement Plants." This paper was illustrated with a number of stereopticon views showing the various methods and appliances used to safeguard the employes against accidents. He went into great length detailing the care and patience with which the men are drilled or schooled in the proper observance of due care in the handling of every kind of machinery. The instructions are printed in every language and the men are cautioned to read the book and are questioned from time to time to see whether they understand the same. Marks of merit consisting of a button which is worn as a badge are given to those who show exceptional proficiency. These buttons are coveted prizes and men who wear them are proud of them. Not only are all the dangerous parts of the machinery covered and protected, but all the electric wires are protected as well. Switches are marked by danger signals and when repairmen go to work on certain parts of machinery or equipment they are given a padlock with which to lock the switch so that no one can throw on the current while they are at work. If two men are at work in the same section at the same time each is given a lock so that if one finishes before the other he simply removes his lock, leaving the other workman's lock in place. The new plants have all the latest safety devices which were installed at the time the plant was built but the old plants had to be remodeled and changed at considerable expense. Mr. Bergquist remarked, however, that he saw no reason why an old plant should not be made as safe as a new plant. Of course the cost would be somewhat higher than if it was done at the time the plant was constructed, but he said that it could be done. They have been remarkably successful in reducing the number of fatalities and accidents, the ratio now being about 5 per cent at the present time and that, he said, he hoped to very materially decrease this percentage since these figures were based on the old mills. The new mill is modern in every respect and the percentage here should be reduced to practically nothing as the machinery and equipment can be said to be almost fool proof. These figures compare very favorably with the number of accidents in the German cement mills, which have hitherto held the records.

Mr. Bergquist's paper was listened to with a great deal of interest by the cement manufacturers present. One of the questions asked was regarding cost of installation and whether it increased the efficiency of the plant. The cost, Mr. Bergquist explained, was easily taken care of by decrease in the number of accidents as accidents are costly. As to efficiency, he said that when the wearing parts and gears were covered they gave better service and the men worked better because of the lack of danger.

The last paper was by Raynal C. Bolling, of

ASSOCIATION OF AMERICAN PORTLAND CEMENT MANUFACTURERS' ANNUAL DINNER AT THE WALDORF-ASTORIA, NEW YORK CITY.

counsel for the United States Steel Corporation, who spoke of "Accident Prevention and Relief." He presented facts and figures which were indisputably in favor of accident prevention and told how the many plants of the steel corporation had by the installation of safety devices and by lessons to employes, materially decreased the number of fatalities and accidents. As the steel corporation and all its subsidiary companies, including the Universal Portland Cement Company, carry their own liability insurance, it is obvious that the remarkable decrease in the number of fatalities and accidents is a subject of congratulation and the many thousands of dollars which they spend on accident prevention each year is returned with interest.

THE BANQUET.

The annual dinner Tuesday evening was, as usual, a brilliant affair. It was held in one of the large banquet halls for which the Waldorf-Astoria is noted. President Edward M. Hagar presided and in a graceful speech turned the gavel over to Robert W. Lesley, the dean of the cement business, who became toastmaster of the occasion. The cement pipes, presented with the compliments of the Universal Portland Cement Company, were the cause of a great deal of merriment on the part of the banqueters, who termed it the "pipe of peace." Those who responded to toasts were George E. Nicholson, T. Henry Dumary, John B. Lober, F. P. Jones, Harry B. Warner, George Bartlett, Duane Miller and W. S. Mallory.

F. W. Douglass led the singing of the "Hard Luck Songs," one of which we reproduce herewith:

THE PROFIT ON CEMENT.

(Tune—Ninety-nine Blue Bottles.)

There was nineteen cents a barrel for the profit on cement,
There was nineteen cents a barrel for the profit on cement,
From the price per barrel take a tiny little cent,
There'll be eighteen cents a barrel for the profit on cement.

There was eighteen cents a barrel for the profit on cement,
There was eighteen cents a barrel for the profit on cement,
We shade the price a trifle and although no harm is meant,
There'll be sixteen cents a barrel for the profit on cement.

There was sixteen cents a barrel for the profit on cement,
There was sixteen cents a barrel for the profit on cement,
With a nickle less per barrel we think we'd be content,
There'll be 'leven cents per barrel for the profit on cement.

scent.
There was 'leven cents per barrel for the profit on cement,
There was 'leven cents per barrel for the profit on cement,
Some day the blooming market takes a sudden short de-
cent,
Leaving seven cents per barrel for the profit on cement.

There was seven cents per barrel for the profit on cement,
There was seven cents per barrel for the profit on cement,
We think we need some business—to a cut we all consent,
And it leaves two cents a barrel for the profit on cement.

There was just two cents a barrel for the profit on cement,
There was just two cents a barrel for the profit on cement,
Soon we need some money quickly—why is very evident,
And there's half a cent a barrel for the profit on cement.

Oh tell me, where's the profit on a barrel of cement,
Oh tell me, kindly tell me, where's the profit on cement,
For even if we don't go broke we'll soon be badly bent,
Unless we make a profit on a barrel of cement.

NOTES OF THE CONVENTION.

One of the familiar faces missing at the meeting was that of Horace Kimble, of the Kent Mill Co. Mr. Kimble has been confined to his home for the past month with a severe and aggravated case of la grippe, but we are happy to say that he has shown marked improvement lately and is now convalescent. He expects to be up and about in another week or ten days. His many friends in the trade join with ROCK PRODUCTS in wishing a speedy recovery.

The Bath Portland Cement Company have opened handsome offices in the Essex Building, Newark, N. J. Shortly after January 1st they will open a New York office.

Lovell Carr, of the Alpha Portland Cement Company, was in the lobby for a few minutes and shook hands with some of his old friends in the trade who were in attendance at the convention.

There were but three machinery and equipment men noted at the convention: T. P. Thorp, of the Power and Mining Machinery Co., W. B. Eldridge, of the Bradley Pulverizer Co., and George Emerick. Mr. Eldridge left Monday afternoon for Boston to attend the funeral of Mr. Griffin, who died suddenly.

VITAL QUESTION OF CEMENT INDUSTRY

By DR. OTTO SCHOTT

The conditions that have obtained lately in the American cement market making themselves felt on the one hand by an enormous overproduction and on the other hand by ridiculously low prices which hardly left any margin of profit, have doubtless demonstrated very clearly the necessity that something will have to be done in order to obviate the continuance of such unhealthy conditions or to prevent the same from getting even more acute. The difficulty of finding the right way out of these calamities must be admitted and no doubt a good many ways and means have been attempted without leading to a solution of the problem; I should like therefore to here adduce some hints emanating from my extended European experience in order to lead you onto the right way to cope with this question.

I am, of course, perfectly aware that conditions are here in America materially different from those prevailing in Europe and that not everything that works to satisfaction abroad may also be regarded as a remedy in America. But what I fail to see is, why European arrangements should not be capable of being adapted and conformed to the peculiarities of this country, at least to such an extent as to render the same partially applicable and fruitful for the conditions that are prevailing here at the present time. When, by traveling for study's sake in the United States last year, I became acquainted with the stupendous proportions of American advertising the application of cement and making propaganda for the same, such as had been hitherto unknown in Europe, I readily conceived the possibility for the German cement industry to draw advantages from the American methods in question. Imbued with this conviction I thereupon called the attention of the German cement manufacturers to these conditions in a lecture I held before them, recommending to them to profit by availing themselves of the American advertising and propagating methods. Quite naturally the objection was raised that in Germany conditions are materially different from what they are in America. But most of the people I had addressed on the subject looked upon the matter clearly and in an unprejudiced way so that as a consequence a publicity bureau was forthwith opened in Germany and a second such bureau will be started April 1st next year. Thus many an arrangement in vogue or introduced in the German cement industry may just as well prove to be useful for America if applied in the proper manner.

Industry in Germany.

In any case, it will be interesting for the American manufacturer to learn in what way the Portland cement industry in the comparatively small country of Germany, which, together with the iron Portland cement factories and the slag cement factories, possesses a producing capacity of 50 million barrels, i. e., precisely the double of what can be sold in Germany itself, manages to create and maintain in the cement market—if not ideal—yet quite tolerable and acceptable conditions. And these conditions would be still better for Germany, if not in consequence of the exemption of cement from import duties nearly two million barrels of cement were imported into Germany. The German Empire has more importation of cement than the whole of the United States of America, and in spite of this circumstance there are not nearly such deplorable conditions in the cement market prevailing in that country as are obtaining in America, though it cannot be denied that the importation of cement from foreign countries does considerable damage to the German cement industry. That Germany is in fact at a great disadvantage may be more clearly seen from the subjoined diagrams:

The possibility of capacity of production such as indicated by the respective line in the diagram amounted in 1910 to round 50 million barrels. The consumption in Germany comes to about half of this quantity, viz., 26 million barrels. In addition to this, as is indicated by a curved line, 1,400,000 barrels are imported in Germany. If in spite of these disadvantages, the German cement industry has managed yet to maintain its footing also in a commercial respect, some definite reasons must necessarily be accountable for this circumstance.

The success of the German cement trade is based on four different points:

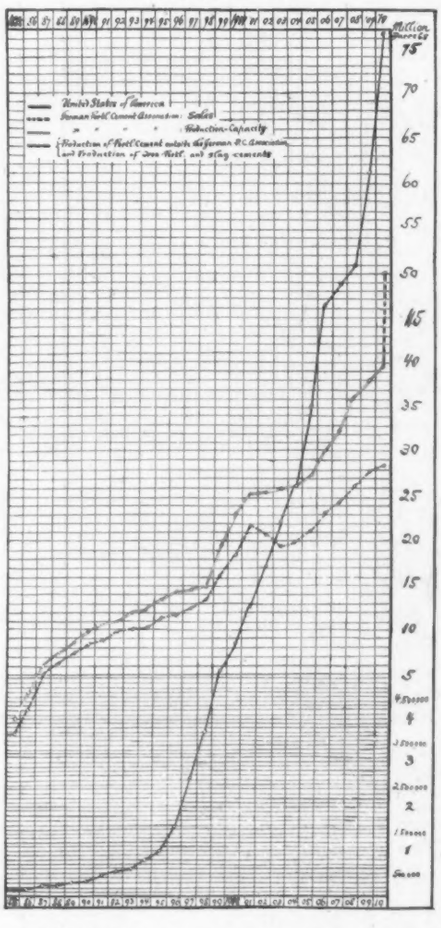
1st. Associations.
2nd. Exportation.
3rd. Low cost of production.
4th. Extensive use of cement in Germany.

It may be permitted to first say something about the two last points, as this can be done with a few words.

Architects Have Confidence.

The application of cement in a proportionately great measure in the country of production is due in Germany—not as in America to the propagating and advertising methods in use, as in that respect next to nothing was formerly done in Germany, but—on the one hand to the circumstance that the German cement manufacturers from the very outset created

Table on Production of Portland Cement.



reliable standards for the examination of cement, which were introduced officially by the state. Thereby in Germany the confidence of the architects was ensured owing to their having through the standards a means of examining and judging the new building material, employing the latter wherever it seemed to them sufficient as a substitute for bricks and natural stone. Moreover, the manufacturers themselves have opened a way for the application of cement by adjoining to their factories certain enterprises for concrete building and factories for cement ware. Formerly almost every cement factory in Germany had a cement-ware factory as an integral part of the plant and a great number of cement works have retained this arrangement to this day. With other works this collateral branch has assumed too great dimensions and therefore the necessity or advisability has arisen to separate same from the cement factory proper and to form especial companies for the production of these wares. In such a manner, for instance, the largest concrete firm in Germany, Dyckerhoff & Wittmann, has been evolved from the cement factory Dyckerhoff. The whole of the canalizations in the large cities of the German Empire in the southern districts have, for instance, been executed by the cement works at Heidelberg, which establishment in former years used to carry out such constructions and also sidewalks itself. Still at the present time the Heidelberg factory possesses a large cement-ware factory. Thus the application of cement has been demonstrated to the public also without the powerful assistance of advertising.

The influence of the low cost of production asserts itself, not with the sale of the product in the country of production in the case of Germany, but all the more in the world market. For it is evident that a country working with low expenses of production is thereby enabled to offer its goods at a low price for export, thus considerably raising its selling capacity.

The Association.

We will defer speaking about the exportation of cement until the conclusion of this article, as I see therein an important factor for the amelioration of the American cement industry; for the present I will explain the character of the German cement associations, especially, as I presume that the latter are regarded in America in an entirely wrong light. I am aware that in some circles of the American cement industry the opinion has taken root that we have in Germany a so-called cement trust; this, however, is by no means a fact. Desirable as such a trust may be also for the German cement industry, the formation of one can hardly be hoped for, as it may be regarded as almost excluded or impossible to mould 125 companies into so firm and compact a commercial structure as is in the nature of a trust. Besides there is every probability that in such a case the German government, precisely as it is done by the American ruling powers, would resent such a trust if the latter were to take too great liberties; it would then be an easy matter to prevent the formation of the trust or its further existence owing to the nature of the German legislation.

What a trust really is can nowhere be better understood than in America; for even if England must be regarded as the birth place of the trust idea, it cannot be denied that it owes to America its real greatness and power, where it has asserted itself in such a manner and with such vigor as to provoke the framing of especial legislation to prevent or check its influence. Though this kind of trust is unknown in Germany, they are in that country at a loss to comprehend the hard struggle against the same, because from the standpoint of the German conception of the matter, a trust whose leading factors know how to keep within the proper boundaries and to refrain from misusing their power, must be a blessing for the whole country. This is the reason why the German government observes a very benignant attitude towards cartells and associations, although these combinations in reality pursue exactly the same principle as a trust, i. e., to avoid over-production, exclude competition and regulate the prices. The difference, however, is that a trust is formed by the combination of all companies, if possible, of a certain branch of industry for all times to a single new company, whereby the independence of the single concerns is completely given up once for all, whereas an association or cartell means only the association of several companies to a society, which jointly attends to the sales of the production of the respective industry. With this arrangement the independence of each of the companies thus joined for the said purpose remains completely warranted as to their internal affairs and to the management of the business, while in contradistinction to the trust such a leaguing together of the single companies is invariably effected to last but a certain number of years. To be continued it has to be renewed; otherwise it will have to be regarded as dissolved of itself at the end of the prearranged term.

In Six Groups.

The associations naturally have no shares of stock. In Germany at the present time almost every industry has its associations. The association probably best known in America is the potash association, which comprises seventy-six companies. The German cement industry has combined into six groups, the oldest of which being the South German Cement Association that includes about thirty factories. Furthermore there is an association for the Rhinelands and Westphalia, for Middle Germany, for Silesia, Hanover, Stettin; moreover about a month ago also the works that sell their cement to the City of Berlin have joined together in a similar way. For a long time a common association for the whole of Germany has been sought to be brought about, which idea has, however, so far proved incapable of realization, as the interests in the various districts of Germany are totally different.

(To be continued next month.)

Concrete

National Association of Cement Users

Meets Annually.

OFFICERS

Richard L. Humphrey, Philadelphia.....President
E. D. Boyer, Catasaqua, Pa.....1st Vice-President
Arthur N. Talbot, Champaign.....2nd Vice-President
E. S. Larned, Boston, Mass.....3rd Vice-President
Ira H. Woolson, New York, N. Y.....4th Vice-President
E. E. Krauss, Philadelphia, Pa.....Secretary
H. C. Turner, New York.....Treasurer
P. S. Hudson, Louisville, Ky.—Common Building Blocks and Cement Products.
H. S. Doyle, Chicago—Exhibition.
W. H. Ham, Boston, Mass.—Insurance.
A. E. Lindau, St. Louis, Mo.—Reinforced Concrete Building By-Laws.
C. W. Boynton, Chicago—Roadway, Sidewalks and Floors.
L. C. Wason, Boston,—Treatment of Concrete Surfaces.
R. P. Miller, New York—Fire-proofing.
Robert A. Cummings, Pittsburg, Pa.—Measuring Concrete.
Peter Gillespie, Toronto, Canada—Nomenclature.
Sanford E. Thompson, Newton Highlands, Mass.—Specifications and Methods of Tests for Concrete Materials.
Logan Waller Page, Washington D. C.—Education.

Remember the dates of the three great cement shows:

New York—Madison Square Garden, January 29-February 3, 1912.

Chicago—Coliseum, February 21-28, 1912.

Kansas City—Convention Hall, March 14-21, 1912.

NEBRASKA CEMENT USERS.

Great things are done in the West. That is what makes the West great. The Nebraska Cement Users' Association has always made a success of its shows, and the event has come to be looked upon in that and surrounding states as one of the great events of the year. Under the auspices of this flourishing association the Mid-West Cement Exposition will be held February 5 to 10 in the city of Omaha.

Peter Palmer, of Oakland, Neb., has sent out the prospectus of the show and a plat of the exposition hall, the Omaha Auditorium, and many applications for space have already been received.

The show comes at an opportune time for all parts of the country. It takes place just following the New York show and before the Chicago exhibition. President H. C. McCord, of Columbus, Neb., is working hard and receiving much encouragement in his efforts to make the show this winter one never to be forgotten.

The good people of Nebraska look upon the cement show as a great educator, and it certainly gives an impetus to the industry there as it does in all other sections where exhibitions are held.

The management is assured of a very fine exhibit of cement products and all lines of allied machinery. During the show the association will hold its annual meeting, and much of interest to the trade will develop during the sessions.

IOWA CEMENT SHOW.

The Iowa Association of Cement Users will hold this winter's convention and cement show at Sioux City, January 10-12. Sioux City was chosen because of its advantageous position from a railroad standpoint. The city is the doorway to four states. It is the second city of Iowa and is a manufacturing and industrial center. It possesses many examples of construction of interest to cement men.

This is the eighth consecutive convention and show of the Iowa Association, and each year's event has shown such a growth over the ones past that only the largest cities can now accommodate it. Sioux City's Auditorium will be taxed to its capacity by the Cement Show, where there will be shown in operation all kinds of cement-using machinery, cement-working tools, concrete mixers, molds, forms, reinforcing, waterproofing, etc. There will also be on exhibition cement and concrete products of various kinds, and the cement manufacturing companies will show all stages in the making of cement from the raw material to the finished article. The gravel, sand and crushed stone men will also be on hand.

CEMENT SHOWS

New York Exhibition the Opening of the Winter's Series of Great Expositions in the Country.

Madison Square Garden is about to be torn down. It is a masterpiece of a master architect, Stanford White, yet at the close of the second annual New York Cement Show on February 3rd it will pass into history.

Architecture has taken great strides in recent years. "The Garden" does not fill present needs, beautiful as it is, for the value of land is too great to allow a city block in the heart of Manhattan to serve only for civic, military, social and trade gatherings, though these are valuable in themselves. "The Garden" has held a warm spot in the hearts of all New Yorkers, even a place in fiction, and is perhaps more widely known than any building in America, yet the congestion of lower New York has demanded this site for loft and office buildings. Madison Square Garden will be lost to the pleasure seeker and to the students of trade and industrial shows. The New York Cement Show gives the visitor a last opportunity of studying this historic hall.

The show of last year opened the eyes of New Yorkers to the fact that there were possibilities for entertainment other than theater going, that the giant strides of concrete construction offered something of interest, not only to engineers, architects, contractors and builders, but made a broader appeal to property owners, home builders and factory managers—in fact, to all who live and work within walls, whose income is derived from processes carried on in factories or shops, or whose business success is dependent on the highest development of building construction, the elimination of fire losses with attendant stoppage of business, and the utilization of the most modern appliances and fittings of building constructors.

Decoration of "the Garden" for the New York Cement Show will be carried through on a scale not previously contemplated or thought possible with trade shows. The ceiling decorations and the hiding of all unattractive structural features of the large hall have been given careful thought, and every effort has been made to turn "the Garden" first into an attractive place for the pleasure seeker and second, into an exceptionally well planned room for the display and study of the two hundred separate exhibits. The Cement Products Exhibition Co. has advertised widely the advantages of attendance to all connected with the industry, and will, through the New York press prior to the show, tell New York of this opportunity, perhaps the last, of meeting the representative manufacturers and designers in the concrete field under one roof. As extensive an advertising campaign as this would not be contemplated without equal effort on the part of the management to insure the presentation of exhibits well worth the study of every class.

An exceptionally strong line of exhibits is expected. This has been a good year with most of the construction companies. They are looking forward to an even greater volume of business for 1912. The cement shows are their greatest lever for forwarding concrete construction. Knowing this, no expense will be spared by exhibitors to present their products in a practical way for close study, and in an artistic way to make the hall not a contractor's plant, but "A Garden" both practical and artistic.

Special interest will be manifested this year on the part of architects, who will find in the gallery a representative collection of plans and drawings showing the best of concrete design in office buildings, factories and homes. This feature was considered one of the most valuable at the Chicago show last year. It is planned to bring together an equal or better collection of drawings, work by the greatest of architects in the greatest city of the United States.

A special appeal is made this year to building supply dealers, those handling lumber, lime, cement and building appliances which are needed in modern reinforced concrete construction. Careful study of the exhibits at a trade exhibition such as this should put the supply dealer in possession of such facts of construction, and such helpful ideas as to contractors' plant equipment, engineering designs and labor saving devices and building accessories as will make him of distinct help to his trade. He may institute himself as a "Service Bureau," a "clearing house" for the coördination of the ideas of the designer, builder and owner. Dealers unconsciously do this in some measure, and such constructive help should strengthen trade, should clinch sales with occasional customers, and make them a force, for better and more economical building in their home fields.

At the cement shows are gathered the brightest minds in the cement and concrete field, men who know their business thoroughly, are fully abreast with the times, if not a little in advance, and the opportunity to meet them is a decided privilege.

The contractor can buy equipment in two ways: he may go from sales room to sales room, or from catalog to catalog, taking the word of the advertising writer, or carrying in his mind the relative advantages of competing machines as he studies each company's product. It is difficult to make a choice under these conditions. Or he may visit the cement shows, see competing machines side by side, study their relative merits in a way that it is impossible under the usual buying plan. Manufacturers from scattered cities such as Cleveland, Chicago and Pittsburgh, Philadelphia, as well as New York, will all show within a radius of a few feet. For a careful buyer the cement show offers the one good opportunity of the year.

The New York show is the first of three to be held this year. Chicago will have its fifth, and Kansas City its first cement show. Do not fail to attend at least one of these gatehrings.

Following is a revised list of exhibitors who have contracted for space:

New York.

Abbe Engineering Co., New York City.
Abbey-Brooks Co., Newark, N. J.
Allentown Portland Cement Co., Allentown, Pa.
Alsen's American Portland Cement Co., New York City.
American Mason Safety Tread Co., Chicago.
American Saw Mill Machinery Co., New York City.
American Steel & Wire Co., Chicago.
American Vault Co., Brooklyn, N. Y.
Art Stone Co., Waynesboro, Pa.
Asbestos Protected Metal Co., Beaver Falls, Pa.
Ashland Steel Range & Mfg. Co., Ashland, Ohio.
Association of American Portland Cement Mfrs., Philadelphia, Pa.
The Atlas Portland Cement Co., New York City.
Automatic Stucco Machine Co., Port Chester, N. Y.
Bath Portland Cement Co., Bath, Pa.
Billings-Chapin Co., Cleveland, Ohio.
Blaw Collapsible Steel Centering Co., Pittsburgh, Pa.
Blystone Mfg. Co., Cambridge Springs, Pa.
The Brown Hoisting Machinery Co., Cleveland, Ohio.
Samuel Cabot, Inc., Boston, Mass.
Carnegie Steel Co., Pittsburgh, Pa.
Cement Appliances Co., New York City.
Cement Machinery Co., Jackson, Mich.
Century Cement Machine Co., Rochester, N. Y.
Ceresit Waterproofing Co., Chicago.
Chain Belt Co., Milwaukee, Wis.
Clinton Wire Cloth Co., Boston, Mass.
Cockburn Co., Jersey City, N. J.
Concrete Steel Co., New York City.
Corrugated Bar Co., Buffalo, N. Y.
Consolidated Expanded Metal Co., New York City.
Crescent Sand & Gravel Co., New York City.
Crown Point Spar Co., New York City.
Detroit Steel Products Co., Detroit, Mich.
The Deutsch System of Detachable Concrete Constr., New Haven, Conn.
Dexter Bros., Boston, Mass.
The Erkins Studios, New York City.
Emerson & Norris Co., Boston, Mass.
Elite Mfg. Co., Ashland, Ohio.
Eastern Cement Gun Co., Wilmington, Del.
Eureka Machine Co., Lansing, Mich.
Robert Fisher, New York City.
Foote-Ehrbar-Wilcox Co., New York City.
Gardner Crusher Co., New York City.
Godwin Sand & Gravel Co., New York City.
Grummas Lawhead & Co., Zanesville, Ohio.
Hains-Weaver Concrete Mixer Co., New York City.
Wm. G. Hartranft Cement Co., Philadelphia, Pa.
The Hayden Automatic Block Machine Co., Columbus, Ohio.
The Hayward Co., New York City.
Hennebique Construction Co., New York City.
Hildreth Mfg. Co., Lansing, Mich.
Benj. A. Howes, New York City.
Robt. W. Hunt & Co., New York City.
Illinois Steel Co., Chicago.
International Bureau of Consultation, New York City.
Jackobson & Co., New York City.
Jaeger Machine Co., Columbus, Ohio.
H. W. Johns-Manville Co., New York City.
Jones & Heitzel, Streator, Ill.
Kent Machine Co., Kent, Ohio.
Keystone Varnish Co., Brooklyn, N. Y.
Keystone Waterproofing Co., New York City.
The Knickerbocker Co., Jackson, Mich.
Kramer Automatic Tamper Co., Peoria, Ill.
La Grange Specialty Co., La Grange, Ind.
Lansing Wheelbarrow Co., Lansing, Mich.
Lock Joint Pipe Co., New York City.
Locke Tile Drill Co., New York City.
David Lupton's Sons Co., Philadelphia, Pa.
Marbolith Stone Co., Tuckahoe, N. Y.
Miles Mfg. Co., Jackson, Mich.
Clifford L. Miller & Co., New York City.
The Minwax Co., New York City.
Monument Plaster Co., Harrison, N. J.
New Hygienic Refrigerator Co., Indianapolis, Ind.
The Norwalk Vault Co., Norwalk, Ohio.
Ohio Post Mold Co., Toledo, Ohio.
Peerless Brick Machine Co., Minneapolis, Minn.
Pennsylvania Cement Co., New York City.
D. & A. Post Mold Co., Three Rivers, Mich.
Raber & Lang Mfg. Co., Kendallville, Ind.
Rock Products, Chicago.
Sandusky Portland Cement Co., Sandusky, Ohio.
Sasgen Brothers, Chicago.
The Scandinavia Belting Co., New York City.
M. L. Schlueter, Chicago.
The Simpson Cement Mold Co., Columbus, Ohio.
L. Sonneborn Sons, Inc., New York City.
The Standard Scale & Supply Co., New York City.

Stowell Mfg. Co., Jersey City, N. J.
Toch Bros., New York City.
Turner Construction Co., New York City.
C. A. P. Turner, Minneapolis, Minn.
Universal Portland Cement Co., Chicago-Pittsburgh.
Union Iron Works, Hoboken, N. J.
Vulcanite Portland Cement Co., New York City.
Charles Warner Co., Wilmington, Del.
Waterloo Cement Machy. Corp., Waterloo, Iowa.
C. S. Wert, Kendallville, Ind.
Zeiser Bros., Berwick, Pa.

CEMENT USERS.

Strong Probability that the National Association Will Hold Its Annual Convention at Kansas City.

Richard L. Humphrey, president of the National Association of Cement Users, has returned from a rather lengthy visit to Europe and has plunged himself into the association affairs with his accustomed enthusiasm and energy. It has not been definitely decided just where the association will hold its annual meeting, but there is a strong probability that the convention will take place during the Kansas City Cement Show, which will be held there March 14-21.

The Association's Purpose.

The association has done much to advance the proper use of cement; the specifications formulated have raised the standard of work; the papers and discussions, at the annual conventions, assist the members in solving the problems in their daily work. It is to your interest to develop the concrete industry as rapidly as possible along safe and sane lines and you should, therefore, assist the association in its work at least to the extent of holding membership.

All the leading engineers and contractors hold such membership and we are sure you will find it of value in your work.

The leading men of the industry, engineers, architects, contractors, concrete specialists and artisans in all parts of this country consider such membership worth many times the small annual dues of $5.00, and membership in the association has now reached a total of over 1,100 active live men.

It is universally acknowledged that the increased usefulness of this association will have an important bearing on the future of the industry, and it is believed that the information the members receive through the efficiency resulting from an increased membership will be such that no one interested in the industry can afford not to be a member.

Thousands of builders are looking for correct information as to the verious methods of the proper use of this material. The volumes of the proceedings of the association contain just the information desired. They are replete with the actual experience of all the leading experts of this country as brought out in the papers and discussions at the conventions.

Standards have been prepared by committees and presented at the annual conventions. All of the standards adopted have been thoroughly discussed by practical and experienced contractors and experts in the respective subjects and, therefore, represent specifications and recommended practice of the highest order.

The purpose of the association is to assist every user of cement in his work so that he will be able to obtain better results and thereby more business. The cost of the work of the association is borne mainly by membership dues and every user of cement receives a direct benefit of this work. In return for your membership dues the association gives you, among other printed matter, a copy of the annual proceedings which contains invaluable information, such as discussions and papers on actual work in every line. The practical experiences reported in the discussions are information which cannot be bought for money and which may be the saving of a great deal of expense to you in your work. Anyone interested in cement or concrete construction cannot afford to be without a copy of these proceedings.

CEMENT HOUSES IN SOUTHERN ENGLAND.

A number of cement block cottages are being built at Plymouth, England, but Consul Joseph G. Stephens says that the blocks are made by hand in rough moulds, which is more expensive than concrete walls. Two men and a boy earning a total of $2 a day make 125 of the blocks a day.

Fire destroyed the plant of the New York Adamant Company at East Newark, N. J., December 14. The loss was estimated at $100,000.

The Concrete Mixing and Conveying Company, of Chicago, Ill., has increased its capital stock from $10,000 to $50,000.

The Twentieth Century Concrete Mixer Company, of Butler, Ind., has been bought by business men of Connersville, Ind., and the machinery will be moved there. The plan is to organize a new company and increase the output of mixers.

Frank L. Ludwig, a concrete contractor of Milwaukee, has filed a voluntary petition in bankruptcy. Liabilities are scheduled at $3,238, of which $3,213 is unsecured. Assets are given at $1,523.

The Eau Claire Concrete Company of Eau Claire, Wis., has commenced operations in its new plant. The plant is equipped with the latest machinery and is one of the most complete and modern of its kind in the United States. The company makes a specialty of silo building, while ornamental work and cement blocks of all kinds are turned out.

The Blanchardville Cement Product Company of Blanchardville, Wis., has been incorporated with a capital stock of $10,000 by F. S. Waite, M. J. Cleary and P. J. Dunlap.

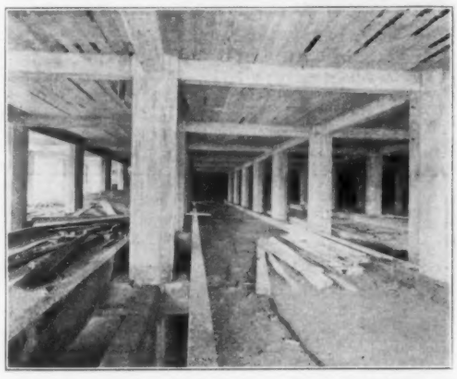
The John Wright property at Lancaster, Wis., has been purchased by Dr. G. C. Marlow, John Drinkwater and George P. Walker, who will establish a plant for the manufacture of cement posts and other cement products.

BEEF HOUSE

Cold Storage House of Nelson Morris & Co., at Chicago Stock Yards, Water Proofed in a Perfect Manner.

In the Union Stock Yards of Chicago, the world's packing center, reinforced concrete has been used extensively, and the most advanced practise is to be found there in many notable examples. The reader is already familiar with the concrete runaways, the reinforced concrete trestles built in separate members and brought to the site and assembled like steel, the concrete fences, the concrete platforms and concrete runaways. Nowhere else in the central west has concrete been employed in so many ways as at this great abattoir which supplies the meat of half a world.

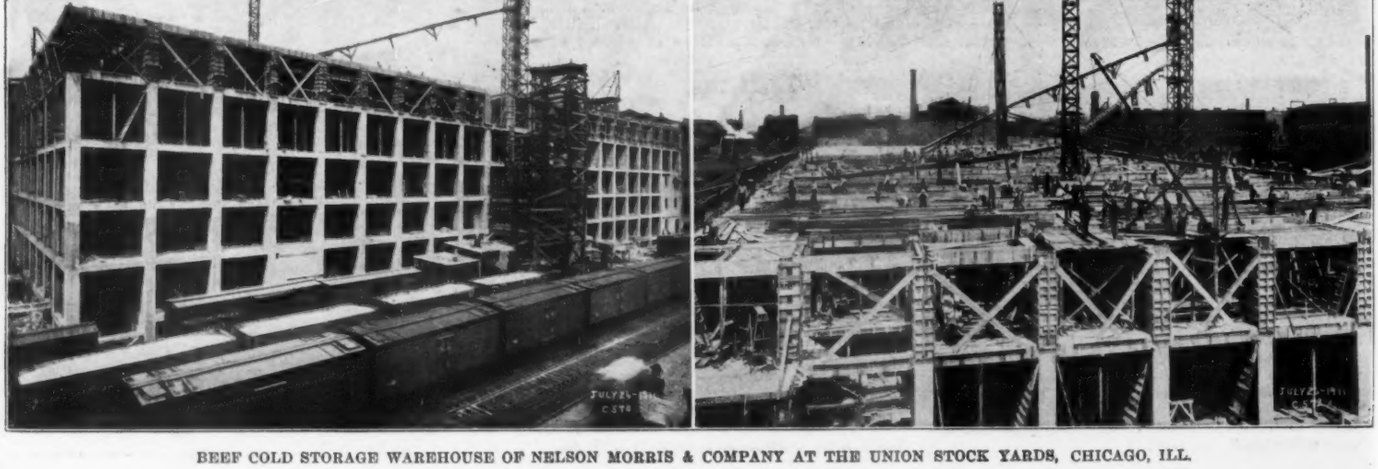
One of the latest examples of this form of construction is the great beef house of Nelson Morris & Co. It is a cold storage warehouse and in its



PILLARS AND BEAMS OF THE INTERIOR OF THE BEEF COLD STORAGE WAREHOUSE OF NELSON MORRIS & COMPANY, CHICAGO.

construction a number of interesting features were involved. The entire building, except the upper floor, is to be used for cold storage. The latter will be used for dry storage requiring no special roof insulation. The building is 150 by 350 feet in dimensions and is 108 feet high, comprising seven floors above the basement. The cost, including piping and heating plant is $580,000 or slightly over 10 cents a cubic foot.

The floor girder and column system is entirely separate from that supporting the outer brick curtain walls. The octagonal columns, starting twenty-nine inches in diameter at the foundations give way at the sixth floor to twelve inch square columns. The floors are monolithic and cast integral with the girders, the girders extending but twelve inches below the floor slabs.

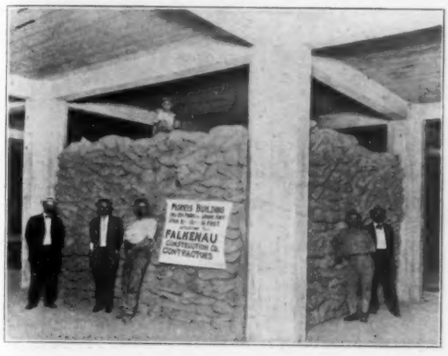


BEEF COLD STORAGE WAREHOUSE OF NELSON MORRIS & COMPANY AT THE UNION STOCK YARDS, CHICAGO, ILL.

The cement used in all the foundations and in the floors was waterproofed by the use of McCormick waterproofing. This waterproofing was mixed at the site in a special mixing plant under the supervision of the McCormick Waterproof Portland Cement Company of St. Louis, represented in Chicago by W. H. K. Bennewitz, with offices in the Chamber of Commerce building.

In general the floors are built up in three sections, first a six-inch reinforced floor proper on which is laid a three-inch layer of insulation. This again is covered with a three-inch wearing surface of concrete lightly reinforced. The third and fourth floors, requiring special waterproofing, are differently treated, being covered by one and one-half inches of asphalt applied in two layers. Two of the floors are arranged in such a manner that the cooling pipes on the one floor will cool the room below.

Something like 118,000 sockets were inserted in the under surface of the floor slabs for attaching



HOW THE FLOORS WERE TESTED IN THE BEEF COLD STORAGE WAREHOUSE OF NELSON MORRIS & COMPANY, CHICAGO.

hangers for the traveling system which is most expensive and leads into every department of the plant. Provision was also made for running electric conduits through the girders rather than bending them beneath at each crossing.

The wall system is also interesting. While it is tied to the inner structure by three-fourths inch square rods at each column head, yet it is separated from the inner by a space of six inches. The exterior surface of the building is much the same as other large reinforced concrete buildings, but with vertical columns thirty inches wide extending from the basement to the roof. These columns and beams serve as a support for the thirteen inch walls, the intervening space being filled with "Lith" insulation in two layers. This was to a certain extent a duplication of the supporting members with an increased cost, and yet was necessary to perfectly insulate the wall area. The interior is finished with cement plaster applied directly to the insulation. This gives an entire inside surface of either concrete or cement plaster to facilitate washing.

There is no doubt that the problems of insulation, fireproofing and waterproofing especially in the use of the McCormick method before referred to, have been worked out to perfection in this building.

The Gordon Jones Construction Company, of San Antonio, was awarded the contract of construction of seven concrete buildings for the tubercular colony to be built at Carlsbad, near San Angelo, Texas, for $44,150.

A concrete mixer on a flat car or any other uncovered arrangement cannot be classed as a workshop or factory and the owners will not be bound by the same liability laws. The federal court has decided this in the case of E. L. Casey against the Barber Asphalt Company at Walla Walla, Wash. Casey was given $75,000 damages for injuries received but Federal Judge Rudkin set the verdict aside.

Jansen & Zoeller, concrete contractors, will erect a new concrete office building for themselves at North Capitol and Market streets, Pekin, Ill.

The Hickman Concrete Company, Hickman, Ky., managed by J. T. Stephens, is prospering. Much paving work has been done this year by the firm and several residences and churches recently. The Miracle Pressed Stone Company's block machine is used. Twelve car loads of Cosmos cement have been used by the firm this year.

MODERN BUSINESS STRUCTURE.

Goodman Brothers & Hinlein, of Philadelphia, have a new building at Thirteenth and Callowhill streets that is attracting much attention.

The building is seven stories and basement in height, of concrete cage construction veneered with brick. The foundations are reinforced concrete; all wall columns are monolithic concrete reinforced with vertical rods and horizontal ties; the interior columns for five stories are structural steel encased in concrete; the columns in the remaining stories are monolithic concrete reinforced with rods and ties the same as the wall columns; the floor system consists of reinforced concrete girders, beams and slab; the finished floors are maple, except in the basement, which is cement. The street fronts are of red Philadelphia stretcher brick, laid up with colored mortar, with granite trimmings in the lower stories. The remaining trimmings are light terra cotta, except the lintels over the windows, which are tooled concrete, these lintels forming a structural part of the floor system. The building

GOODMAN BROTHERS & HINLEIN BLDG., PHILADELPHIA, PA.

contains one vestibule tower fire escape on the rear and one brick enclosed stairway in the front. Ballinger and Perrot, Philadelphia, were the architects.

AN ATTRACTIVE EXHIBIT.

Whitmore, Rauber & Vicinus, contractors and dealers in cut stone, granite, tiles and interior marble, of Rochester, N. Y., had one of the most attractive exhibits at the Industrial Exposition held in that city recently. The display consisted of a

WHITMORE, RAUBER & VICINIUS' DISPLAY AT ROCHESTER, N. Y.

display of the firm's products in the form of a pergola with vine decorations in front of a small bungalow roofed with tile. A concrete fence and various styles and shapes of tile also were shown.

Henry Eckler Manufacturing Company, of South Bend, Ind., who are retailers of builders' supplies, are going to erect a large warehouse for lime, cement, plaster and other masons' supplies. They are in the market for a concrete mixer and concrete block machine.

We are in receipt of an inquiry from William R. Shore, of Evart, Mich., who wants to know how to make concrete blocks waterproof. If any of our readers have any new ideas to advance along this line, kindly communicate with Mr. Shore.

CONCRETE

Statistics Recently Issued by the Department of the Interior, U. S. Geological Survey, Show Remarkable Gains For Concrete.

The following statistics of the principal cities of the United States, by character of operations, compiled by Jefferson Middleton, of the Department of the Interior, U. S. Geological Survey, show that concrete construction has made remarkable progress:

City.	Concrete.			
	New.		Additional alterations and repairs.	
	Number of permits or buildings.	Cost.	Number of permits or buildings.	Cost.
Allentown, Pa.	10	$8,700	.....	.....
Altoona, Pa.	1	7,000	.....	.....
Atlanta, Ga.	20	606,000	.....	.....
Bay City, Mich.	1	1,300	.....	.....
Bayonne, N. J.	17	306,332	.....	.....
Berkeley, Cal.	(a)	a 55,822	.....	(a)
Binghampton, N. Y.	16	44,015	.....	.....
Birmingham, Ala.	3	26,000	.....	.....
Boston, Mass.	30	1,031,443	14	$42,700
Bridgeport, Conn.	90	284,358	.....	.....
Buffalo, N. Y.	6	380,000	.....	.....
Cambridge, Mass.	14	483,500	.....	.....
Camden, N. J.	6	157,000	.....	.....
Canton, Ohio.	10	60,000	.....	.....
Chester, Pa.	1	3,000	.....	.....
Chicago, Ill.	542	6,626,000	120	60,000
Cincinnati, Ohio.	14	226,975	.....	.....
Cleveland, Ohio.	103	439,385	.....	.....
Dallas, Tex.	.....	.....	.....	.....
Davenport, Iowa.	1	60,000	.....	.....
Denver, Colo.	49	169,000	1	9,000
Des Moines, Iowa.	1	20,000	.....	.....
Detroit, Mich.	38	1,209,500	2	38,000
Dubuque, Iowa.	1	50,000	(b)	3,000
Duluth, Minn.	.....	.....	.....	.....
East St. Louis, Ill.	1	15,000	.....	.....
Elizabeth, N. J.	13	5,865	.....	.....
Elmira, N. Y.	12	379,600	.....	.....
El Paso, Tex.	14	801,720	.....	.....
Evansville, Ind.	6	392,500	.....	.....
Fall River, Mass.	.....	.....	.....	.....
Fitchburg, Mass.	3	47,000	.....	.....
Fort Wayne, Ind.	2	16,000	.....	.....
Galveston, Tex.	.....	.....	.....	.....
Grand Rapids, Mich.	41	147,335	6	4,200
Harrisburg, Pa.	.....	.....	.....	.....
Haverhill, Mass.	.....	.....	.....	.....
Hoboken, N. J.	7	53,830	1	1,000
Holyoke, Mass.	1	4,000	1	40,000
Houston, Tex.	14	899,365	.....	.....
Indianapolis, Ind.	62	617,610	.....	.....
Jacksonville, Fla.	9	251,000	.....	.....
Kalamazoo, Mich.	5	1,000,000	5	100,000
Kansas City, Kans.	1	65,000	3	38,000
Kansas City, Mo.	8	235,000	.....	.....
Lawrence, Mass.	5	42,660	.....	.....
Lincoln, Nebr.	6	37,500	.....	.....
Los Angeles, Cal.	24	1,781,421	1	125,000
Lowell, Mass.	1	206,000	.....	.....
Lynn, Mass.	7	43,200	1	125,000
Macon, Ga.	3	278,800	.....	.....
Manchester, N. H.	2	654	.....	.....
Milwaukee, Wis.	71	965,710	.....	.....
Newark, N. J.	90	d 586,631	.....	.....
New Castle, Pa.	8	2,000	.....	.....
New Haven, Conn.	11	21,375	.....	.....
Newton, Mass.	6	$36,300	.....	.....
New York, N. Y.	.....	.....	.....	.....
Norfolk, Va.	2	36,500	1	$150
Oakland, Cal.	9	194,869	6	47,644
Paterson, N. J.	17	19,277	.....	.....
Peoria, Ill.	12	29,480	.....	.....
Philadelphia, Pa.	28	2,100,000	75	300,000
Pittsburgh, Pa.	24	172,000	.....	.....
Portland, Oreg.	100	3,670,000	22	18,325
Pueblo, Colo.	2	2,150	.....	.....
Quincy, Ill.	7	182,700	.....	.....
Reading, Pa.	11	10,000	.....	.....
Richmond, Va.	7	268,000	.....	.....
Rochester, N. Y.	95	342,768	47	46,448
Sacramento, Cal.	4	93,300	.....	.....
Saginaw, Mich.	4	26,300	.....	.....
St. Louis, Mo.	176	3,103,138	142	254,740
St. Paul, Minn.	50	1,084,392	3	82,293
Salem, Mass.	1	4,000	.....	.....
San Antonio, Tex.	11	30,000	.....	.....
San Diego, Cal.	14	1,229,900	.....	.....
San Francisco, Cal.	17	786,000	(a)	(a)
Savannah, Ga.	21	97,500	.....	.....
Scranton, Pa.	.....	.....	.....	.....
Seattle, Wash.	24	2,062,400	12	275,425
South Bend, Ind.	16	69,560	.....	.....
Springfield, Ill.	2	363,000	.....	.....
Springfield, Mass.	3	175,250	.....	.....
Syracuse, N. Y.	67	577,888	4	40,000
Tampa, Fla.	21	170,881	.....	.....
Terre Haute, Ind.	35	23,115	2	1,050
Toledo, Ohio.	12	672,000	.....	.....
Topeka, Kans.	4	318,000	.....	.....
Troy, N. Y.	2	10,600	.....	.....
Utica, N. Y.	11	21,470	2	4,000
Washington, D. C.	1	10,000	.....	.....
Wichita, Kans.	6	560,000	.....	.....
Wilkes-Barre, Pa.	2	40,000	.....	.....
Wilmington, Del.	.....	.....	.....	.....
Woonsocket, R. I.	4	2,600	.....	.....
Worcester, Mass.	7	125,675	2	17,000
Yonkers, N. Y.	23	87,700	.....	.....
York, Pa.	2	4,000	.....	.....
Total.	2,321	39,959,759	473	1,672,975
Per cent of total.	.....	4.68	.....	.30

THE WORLD'S GREATEST GYPSUM MILL.

(Continued from Page 3.)

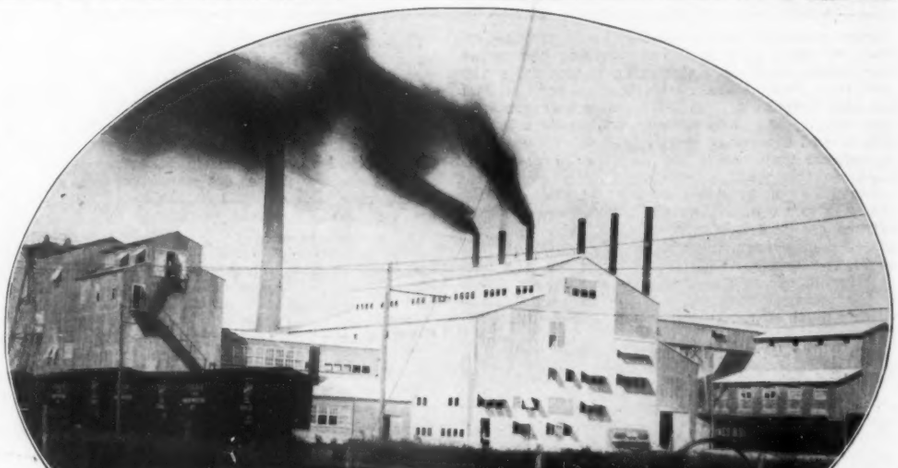
development was intrusted to the supervision of one of the best mining engineers in the country, in order that it would be such that it would take care of the deposit in the most economical and most up-to-date method, with a far view into the future for large output.

Without going into the details of the mill, it is sufficient to say that it is built at this time to take care of the present demands of the trade, is fireproof throughout and is equipped with the United States Gypsum Company's own special machinery for the purpose of making the uniform and high-grade materials for which this progressive institution is noted. The arrangement is such that it can be extended quickly and easily to take care of additional capacity when needed.

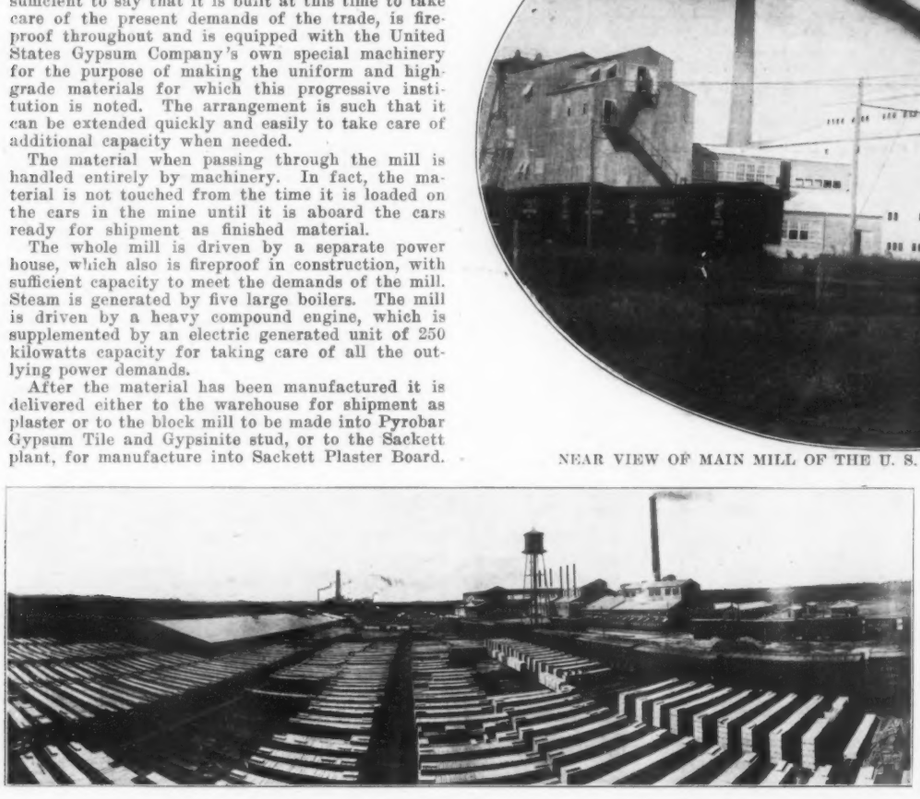
The material when passing through the mill is handled entirely by machinery. In fact, the material is not touched from the time it is loaded on the cars in the mine until it is aboard the cars ready for shipment as finished material.

The whole mill is driven by a separate power house, which also is fireproof in construction, with sufficient capacity to meet the demands of the mill. Steam is generated by five large boilers. The mill is driven by a heavy compound engine, which is supplemented by an electric generated unit of 250 kilowatts capacity for taking care of all the outlying power demands.

After the material has been manufactured it is delivered either to the warehouse for shipment as plaster or to the block mill to be made into Pyrobar Gypsum Tile and Gypsinite stud, or to the Sackett plant, for manufacture into Sackett Plaster Board.



NEAR VIEW OF MAIN MILL OF THE U. S. GYPSUM COMPANY, FORT DODGE, IOWA.



YARD OF THE U. S. GYPSUM COMPANY, FORT DODGE, IOWA.

A considerable bulk of the material made is delivered to the warehouse, where it is mixed with the proper ingredients and converted into the large variety of brands of plaster and finishes that the United States Gypsum Company manufactures. These brands are made by the addition of varying amounts of different ingredients to adapt the material to all the varying conditions under which plaster is used. The warehouse also has sufficient storage capacity to enable the mill to operate several days without shipping any product, or to enable the warehouse to run several days in event the mill is shut down due to accident or trade conditions.

Stucco is also taken from the mill to the Pyrobar plant, located about 300 feet from any of the other buildings, by means of a long conveyor. There it is manufactured into Pyrobar Gypsum Tile, now so extensively used for fireproof partitions, wall furring, etc. The use of this material is becoming so common that nearly everybody is familiar with it and needs no explanation here. The field which this tile is beginning to occupy is broadening very rapidly, and therefore this plant also is built with a view to increase it indefinitely to take care of the conditions as they develop. This plant also manufactures Gypsinite stud, which is the fireproof substitute for wood studding.

The same conveyor that delivers the material to the block plant also extends about 300 feet farther, to the Sackett mill, where the Stucco is used for the manufacture of Sackett Plaster Board, which by its superior merits is rapidly taking the place of wood and metal lath in modern building construction.

All of these various buildings are connected by a special switch board which is operated by electric locomotives and so laid out that the cars can be placed in their proper positions at any point where desired, with a minimum amount of switching. A special locomotive is maintained at all times to give this switching service, and the result is that both raw and finished materials are taken care of very promptly. The switch yard in question has a trackage length of over two miles.

HAIR IN PLASTER.

Important Function Played by This Material in Mortars Used in Construction and on Walls.

The use of hair in plaster dates back to the time when brick or frame buildings were first erected, hundreds of years ago, through all the ages from the crude houses of our forefathers, and while it is not in quantity a prominent article in the building industry, the use of it is of the utmost importance and could not be dispensed with.

No inside covering of any building in the form of plaster could be put on or remain on without the use of plenty of hair. This is true of all the years in which plaster has been used, from the time when nothing was put on inside walls but

VIEW IN STOREHOUSE SHOWING SACKETT PLASTER BOARD READY FOR SHIPMENT.

plaster made of lime, sand and hair, and today, when so much patent plaster is used, hair is of even more importance and larger quantities are used than ever before. The use of plenty of hair not only permits the plaster to be put on the wall economically and satisfactorily, but binds it to the lath or whatever may be used, and is of even more importance than the plaster itself in keeping that plaster on the wall.

Very few patent plasters fail to give satisfaction nowadays, and probably one of the greatest reasons is that manufacturers use as great a quantity of hair per ton of plaster as the material will stand.

Whoever has had occasion or sufficient interest to examine the walls of an old building being torn down, has found, upon breaking the plaster, the presence of cattle hair, and which hair was discovered to be unchanged in character or condition from the time it was on the cow's back. And it will also have been noticed that what holds the plaster together is the presence of hair, and the fact that it has remained in perfect condition and strength assists greatly in holding the walls on the building for, in some cases, a hundred years.

It is so well recognized by all concerned that the presence of hair in plaster is necessary, that an owner, architect or builder, in testing plaster pays more attention to the quantity or quality of the hair in that plaster than he does to the plaster itself. If he finds plenty of hair in it he pronounces it good plaster; if not, he insists upon an additional quantity of hair being put in, and he then knows that if by any mischance the plaster is not just right the hair will be one of the most important agencies in keeping it on the wall.

Now that so much plaster is made by machinery at large mills scattered throughout the country, the presence of hair in plaster is of even greater importance than ever before, and can be put into the plaster to better advantage. The hair is fed into the mixing machines with other articles, and, because of its pliability, strength and the special preparation given it nowadays, it permeates every part of the plaster. It seems peculiarly adapted to the purpose. No other material ever has or ever can take its place. Its nature is such that with proper treatment practically every fiber is separated from the others. Each fiber is strong enough to hold the plaster to which it adheres, and with many of these fibers of hair appearing throughout the material, adds greatly to the strength of the plaster.

When the old style plaster, made by mixing lime, sand and hair at the job, was in vogue, practically all cattle hair was used, but when patent plaster was put on the market, and for some time afterwards, it was thought goat hair was more suitable; but this latter article is very uncertain in quantity, grades and price. Its present scarcity, inducing the patent plaster manufacturers to use cattle hair instead, has been a wonderful boon to the manufacturers, with the result that specially selected, treated and prepared cattle hair has been taken up again with very great profit and success, and it now has the field almost to itself.

The return to cattle hair is the most recent and most beneficial development in the patent plaster line. It is always in ample supply, is uniform in grades, is lighter for same bulk, and is considerably lower priced than is goat hair; therefore it will go further, will permeate the plaster better, and, for some peculiar reason, is found to retain its condition and strength in plaster for an indefinite period, just as it has done for so many centuries in the past.

The Illinois Leather Company, 930 North Halsted street, Chicago, Ill., which, by the way, does not manufacture or handle leather, is the pioneer and leader in the cattle hair and goat hair business. They enjoy the trade of almost all the patent plaster companies in hair, and their product has been found to be the most suitable, reliable and uniform. They have unequaled advantages and facilities, operate many large hair factories, and can reach any market to good advantage. The new cattle hair they are putting on the market is at the same time a revolution and a revelation. Its use has enabled the patent plaster companies to save thousands of dollars, to put more hair into each ton of plaster, and to be sure of an ample and uniform supply at reasonable prices.

This is not the old kind—lumpy, dusty, poorly prepared cattle hair—but practically a new article, specially selected raw material which has been so treated that it retains its perfect condition; and undoubtedly one of the greatest reasons why their hair is preferred and why it lasts so long in plaster, is that their facilities are such that they get the hair almost as soon as it has been removed from the hide. They immediately prepare it, and it is a well-known fact that once hair is dried promptly it will retain its strength, color and condition.

If you are any of the few who are not using cattle hair, we can strongly urge you to get in touch with the Illinois Leather Company and they will be glad to demonstrate what this material can do for you. While cattle hair has been found to be better, you can secure goat hair from them also if you prefer that kind.

ANNUAL BANQUET.

The annual banquet of the O. H. Paddock Lumber Company officials, directors and yard managers was held November 25 at Pana, Ill. Among those present were Mr. and Mrs. C. S. Tomilson, Nokomis; Mr. and Mrs. George Notermay of Nokomis; Mr. and Mrs. J. F. O'Donnell, Ohlman; Mr. and Mrs. J. A. Combs and niece of Findlay; Mr. and Mrs. E. S. Combs, Findlay; C. A. Combs, Kinmundy; O. J. Hanson, Coffeen; Mr. and Mrs. A. W. Bryce, Edinburg; Fred Kellogg, Assumption; Mr. and Mrs. A. L. Blyth, Windsor; O. J. Tomilson, Morrisonville; Porter Paddock, Springfield; Mr. and Mrs. R. T. Paddock and daughter, Mr. and Mrs. J. W. Paddock and sons, Mr. and Mrs. Ed Shaper, Mrs. Hayward, Miss Hayward, Mr. and Mrs. William Coe, Albert Stanton, Warren Penwell, Mr. and Mrs. Edward Templeton and Mr. and Mrs. C. O. Paddock.

This company owns ten yards in Illinois.

Herrin, Ill., city officials awarded a contract to Keely & Tweeney of East St. Louis, Ill., for the construction of 48,000 feet of granitoid sidewalk for $52,841.

C. F. Budtz of Minneapolis is said to be negotiating with St. Cloud, Minn., business men for the erection of a cement and crushed granite brick plant.

The Metal Flanged Concrete Company, of Mount Gilead, Ohio, has been incorporated with a capital stock of $15,000. The incorporators are T. B. Mateer and others.

The Hutchins Sand and Gravel Company, of Hutchins, Texas, has been organized, with a capital stock of $20,000. The incorporators are R. B. Nail, C. T. Nail and E. N. Mulkey.

The L. F. Walsh Company has been incorporated at Boston, Mass., for $1,000 to deal in building supplies. The incorporators are: Levi F. Walsh, John A. W. Silver and Alexander Miller.

A European trade association has informed an American consulate that an important exporter to the Dutch East Indies is desirous of having offers for beton (concrete) and stone breaking machinery.

Cement and re-enforced concrete are extensively used in Nice, France, replacing lumber. No new cement plants were established in 1910 but the ten plants were enlarged and their production increased.

In Great Britain there has been a rapidly extending use of re-enforced concrete. The great railroads have used it for fence posts, the concrete being practically imperishable. The concrete posts are also being used by the farmers.

Matt K. Cammerer of Fairbury, Ill., will increase the capacity of his plant, which will be operated by steam and also use steam for curing his cement blocks. He will also put in machinery for the manufacture of drain tile and sewer pipe.

The Raymond Concrete Pile Company of New York and Chicago has been awarded the contract for placing the concrete piling for a bridge crossing the railroad tracks near the East Moreland Tract, Portland, Oregon, for the Pacific Bridge Company.

The Builders' Supply Company, of Danville, Ill., which has been incorporated with capital stock of $3,000, has not yet definitely selected a location in that city, but it will carry in stock lime, cement, drain tile, brick, lumber and builders' hardware. The incorporators are W. R. Haupt, Howard A. Swallow, corporation counsel, and Robert R. Bookwalter, a well known local attorney.

Legal questions of vital interest to the owner, engineer, architect, builder and inventor are contained in a booklet issued by Charles J. Williamson, 700 Tenth Street, Washington, D. C., dealing with reinforced concrete patents and their scope or monopoly value, and consequences of infringement. These are matters that all should be interested in, especially those who possess either machinery or methods that are covered by a patent.

Side Talk

in which the Advertiser tells his own story

We have in hand a copy of catalog No. 32 of the C. O. Bartlett & Snow Company, Cleveland, Ohio, showing in detail the sizes and descriptions of their Triumph Drop Forged Steel Chains. Very many of our readers are interested in steel chain equipment, for their machinery, and this little book tells it all.

The Ceresit Waterproofing Company, Commercial Bank Building, Chicago, has for distribution a beautiful catalogue containing illustrations of public fountains, pools, etc., that have been waterproofed by the use of its compound. It is well worth the while of every dealer to have a copy of this catalogue and to become interested in pushing the sales of this product.

The Princess Brick & Building Company, which was recently formed at Geiger, Ala., with Messrs. Ray Crow, Geo. Waller and W. L. Waller as officers, will deal in cement, lime, sand and building stone. The company was organized with $5,000 capital, all paid in, and will also engage in the manufacture of brick by the "stiff mud" process. It is stated this is the first firm to enter the general building supply business in Geiger, which is a new and remarkably large town in southern Alabama.

The Barrett Mfg. Co., of New York and Chicago, is to erect a $250,000 plant at Corey, an industrial suburb of Birmingham, in the near future. A tract of thirty-odd acres of land, known as the Burgin tract, was purchased a few weeks ago by the Barrett Co., which is one of the largest manufacturers of roof coverings and roofing materials in the world. The Barrett company has had a small plant in this city for some time, utilizing the by-products of the U. S. Steel Co., at Corey, and it is understood the announced intention of erecting a large and modern plant means the establishment of general sales and manufacturing offices in Birmingham.

HOW TO SELECT AGGREGATES.

The Vulcanite Portland Cement Company, Fifth Avenue Building, New York, N. Y., has come to the front again with a beautiful booklet, showing how Aggregates ought to be selected, and the proportion for Portland cement concrete.

Albert Moyer is regarded as an authority on aggregates, and in the early days of the industry, he was the first to advocate care and discretion in the selection of aggregates in all kinds of construction. He is the originator of the idea of showing various colored stones on concrete surfaces, and his latest book ought to do much to advance the highly artistic methods of construction. The company he represents will be glad to furnish interested persons copies of this booklet, as it in reality constitutes a text book on the subject.

RAYMOND BROS. NEW CATALOGUE.

The Raymond Bros. Impact Pulverizer Company, 520-528 Lafin street, Chicago, Ill., displays as much taste in designing its catalogue as it does expertness in designing its Grinding, Pulverizing and Separating machinery. The new catalogue just issued, tells the story of the company's machinery, not only in language plain and comprehensible to any person, but in illustrations of the highest character, printed on enamel paper.

The materials handled by the Raymond mills run all the way from all the rocks known to the geologist, to alfalfa hay and licorice wood. The business of the company is the manufacture of machinery, especially designed to meet the requirements of each user, for grinding, pulverizing and separating any material that is required to be reduced to powder form. When this company entered the field, the universal practice was absolutely primitive; in principle, burr stones and bolting cloth were assumed. The most desirable means for grinding and separating, combined with extensive and cumbersome machines for elevating, conveying and handling the finished product, grinding rooms were dust laden infernals. The Raymond system is based on entirely new principles, which have revolutionized the business of grinding and separating. The long experience of the company enables it to design a grinding and separating plant for any material, with the absolute assurance of best possible results.

Any problem along this line that you have can be solved by this company.

CLASSIFIED ADVERTISEMENTS

Advertisements will be inserted in this section at the following rates:

For one insertion.....25 cents a line
For two insertions.....45 cents a line
For three insertions.....60 cents a line

Eight words of ordinary length make one line. Heading counts as two lines.
No display except the headings can be admitted.

Remittances should accompany the order. No extra charges for copy of paper containing the advertisement.

EMPLOYEES WANTED

WANTED.

If you are in need of or wish to sell anything which comes under any of these classifications, write us. If you have something not coming under these classifications we will create one for you.

GOOD ALL-AROUND SUPERINTENDENT

Wanted—To manage lime plant and crusher plant in Indiana. Must be competent and understand crushing machinery and quarrying limestone. Good position for right man. State experience and salary expected.
Address "Townmill," care ROCK PRODUCTS.

HUSTLER.

Wanted—A man of thorough experience to take charge of a large crushed stone quarry. Must be able to assume entire charge. Must be a hustler and well recommended. Send full particulars and references with first letter.
Address M. GOODMAN, 2255 Hamilton Ave., Cleveland, Ohio.

FOREMAN.

Foreman wanted to take full charge of Hydrating Lime Plant in eastern Pennsylvania. Give full particulars, experience, salary desired, etc.
Address 820, care ROCK PRODUCTS.

GOOD POWDER MAN.

Wanted—For Rock Crushing Plant. Steady employment and good wages to the right man. References required. Address 827, care ROCK PRODUCTS.

SUPERINTENDENT.

Wanted—A competent superintendent for a Silica Rock Crushing Plant, with Crusher Rolls and Dryer. Capable of Crushing and Loading 600 Tons per day. We want a man who thoroughly understands making sand for steel Moulding. Apply, stating salary expected, and give references.
RIDGEVIEW SAND CO., Oil City, Pa.

FOREMAN.

Wanted—A capable man who can furnish first-class references, to take charge of limestone quarry and crushing plant. Must understand machinery.
CYRUS WORLOCK, R. F. D. No. 4, Canastota, N. Y.

WANTED STEAM DRILLERS.

Three experienced drillers for limestone quarry. Good wages. Give references.
Address 828, care ROCK PRODUCTS.

EMPLOYMENT WANTED

SALESMAN.

Position wanted as salesman for Cement, Lime or Wall Plaster for New York, New Jersey or Pennsylvania, by a gentleman 33 years of age. Seventeen years on the road. Thoroughly acquainted with the trade and can make good.
Address LIVE WIRE, care ROCK PRODUCTS.

MATERIAL FOR SALE

RUBBER CONVEYOR BELT.

Two pieces rubber conveyor belt, each 215 feet long, 18 inches wide, 5 ply and ⅛" extra rubber on one side. New and at factory in Chicago. Make us an offer.
A. M. BLODGETT CONSTRUCTION CO., Kansas City, Mo.

MACHINERY WANTED

SAND LIME BRICK PLANT.

Wanted—Machinery for two press plant. Must be in good condition. Give particulars and price.
H. L. CONLIN, East Toronto, Ont., Can.

CRUSHER.

One No. 8 style "K" Gates or McCully Crusher. Quote lowest price for cash and state condition of same.
Address 819, care ROCK PRODUCTS.

MACHINERY FOR SALE

THE BEAL CORE DRILL.

The best, cheapest and most effective core drill for testing quarries, coal and mineral lands. Brings a solid core, from 2 to 4 inches in diameter to the surface, showing the different formations it passes through. Records of each hole furnished. Correspondence solicited.
Address,
EDWIN S. BEAL,
214 Woodlawn Ave., Lansing, Mich.

THEW SHOVEL.

For Sale—No. 3, overhauled, first class shape. Also narrow and standard gauge locomotives. Address Southern Iron & Equipment Co., Atlanta, Ga.

BUSINESS OPPORTUNITIES

PATENTS SECURED FOR INVENTIONS.

C. L. Parker, ex-examiner U. S. patent office, 956 G St., Washington, D. C. Write for inventor's handbook.

WANTED.

Wanted—Firm now handling coal and sewer pipe, with yards, railroad connections and teams, wishes to add a profitable side line. Address
FRANKEL COAL CO., 1044 S. Eighth St., Louisville, Ky.

FUTURE PROSPECTS.

Want to correspond with parties that can finance a good sand, gravel and crushed stone proposition. Good prices and good future prospects.
Answer 823, care ROCK PRODUCTS.

F. A. Jones, M. E.

Gypsum Specialist

Consulting, Mechanical and Chemical Engineer, in Designing, Construction and Operation of Plaster Mills, (Kettle or Rotary Process), Elevating, Conveying and Crushing, Mechanical Drying, (Kiln or Rotary) and Hydrating Plants, Power Houses, Pumping Stations and Water Powers.
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YOUNGSTOWN, OHIO.

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N. W. Cor. 12th and Spruce Sts., Philadelphia, Pa.
PLANTS DESIGNED OR REMODELED

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Special Prices on These If Sold DURING DECEMBER

Thew Full Circle Traction Shovel size No. 0.
Bucyrus 50 ton 1¼ yd. Steam Shovel.
Vulcan 95 ton 3½ yd. Steam Shovel.
Browning 10 to 15 ton Locomotive Crane: 38-foot boom.
Owen 1 yd. Clam Shell Bucket.
Hayward 1 yd. Orange Peel Bucket
Gates Nos. 1, 2, 3, 5, 6 Gyratory Crushers.
Austin Nos. 2 and 8 Gyratory Crushers.
Porter 10x16 Saddle Tank Standard Gauge Locomotive.
Baldwin 14x22 Switching Engine and Tender: 24 ton.
Large Stock of Steam Pumps, Air Compressors, Boilers, Engines, Dump Cars, and Light Rail.

We are moving our storage warehouse and yards: desire to reduce stock. Now is the time to buy. All our goods are guaranteed by us.

WILLIS SHAW MACHINERY CO.

39 So. La Salle Street
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C. T BELT, Warder Bldg., Washington, D. C

Continuous and Double Air Space Building Blocks

Eighty Page Concrete Machinery Catalogue FREE.

FRANCIS MACHINERY CO., 4 Market St., St. Louis, Mo

FOR THE WALLS OF THE WEST

USE NEPHI PLASTER

THE DEPENDABLE BRAND

For sale by the most prosperous dealers in every community throughout the Pacific Coast and Rocky mountain states. Highest grade Hardwall, casting, finishing, dental and land plaster. Used in the highest class structures throughout the west for more than twenty years. Time has told the story. Hard, permanent, enduring.
Made from the largest and purest deposit of gypsum in the world. Write for free booklet.

NEPHI PLASTER & MANUFACTURING CO.
Main office, Boston Building, SALT LAKE CITY, UTAH

THE BEST LOCATION FOR CLAY WORKERS

The raw materials of kaolin, ball clay, stoneware clay, slip clay, sagger clay, feldspar, and silica are all found in various parts of the Southeastern States, in ample quantities to supply the largest possible demands. **Fuel is amply and cheaply supplied in the Southeast.** In 1908 the U. S. Geological Survey estimated that the four states of Georgia, Alabama, Tennessee, and Kentucky contained an available supply of coal totaling over 60-billion tons, and the average price at the mine in 1909 for the four states was $1.15 per ton, the fuel and coking values of this coal being unsurpassed. Natural gas is also available in some sections at extremely **reasonable rates.** Close investigation will satisfy interested parties that the Southeast is the best location for such industries. Write

M. V. RICHARDS, Land and Industrial Agent, Southern Railway, Room 1006 Washington, D. C. — or — CHAS. S. CHASE, Agent, Room 702 Chemical Bld'g, St. Louis, Mo.

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General Offices, Exchange Bldg., Memphis, Tenn.

Our Quarry Facilities are of the Best.

We build municipal street work, turnpikes and give attention to all construction work of a similar character. Our organization is backed by twenty-five years experience, and we are in a position to furnish specifications and estimates promptly. Individuals, Corporations or Municipal authorities are invited to correspond with us.

"The Public Be Pleased"

Reds Browns Yellow Blacks

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BALTIMORE, MARYLAND

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Anchor Brand Colors

For Mortar, Cement and Brick

Brown, Black, Red and Buff

Strongest and Most Durable

Manufactured by C. K. Williams & Co.

Correspondence Solicited Easton, Pa., U. S. A.

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Advertisers—Take Notice

Changes of Copy

Must be in this office by the Fifteenth of the month, if proofs are desired; if no proofs are required the desired changes can be made if copy is received by noon of the Nineteenth.

New Advertisements

To insure proper classification, should be in this office by the Fifteenth of the month, but they can be inserted in the last form going to press if received by the Ninteenth. The punctual publication of the paper admits no deviation from these rules. Advertisers are earnestly requested to co-operate with us.

THE FRANCIS PUBLISHING COMPANY

537 South Dearborn Street, Chicago, Ill.

THE HENRY MARTIN BRICK MACHINE MFG. CO.

LANCASTER, PENNA.

ROCK CRUSHING MACHINERY
BRICK-MAKING MACHINERY
CLAY-WORKING APPLIANCES
CEMENT BRICK MACHINERY
SAND GRINDING MACHINERY
SAND DRYERS, BRICK DRYERS, ETC.

SEND FOR PLANS AND ILLUSTRATED CATALOGUE

"K & J" CARS FOR QUARRIES

Are Heavily Built for Continuous Service.

The above car carries 3½ tons of stone; cubic capacity 42 ft.; gauge track 36 in. We build cars to any specifications to fit your work. Catalog 60-J.

THE KILBOURNE & JACOBS MFG. CO.

Plant and Gen'l Offices at COLUMBUS, O. NEW YORK 95 Broad St.

Some Bargains in Quarry Equipment

One No. 3 Style "D" Gates Crusher.
Two No. 3 McCully Crushers manganese fitted.
Two No. 5 McCully Crushers manganese fitted.
Two No. 6 Style "D" Gates Crushers.
Four No. 6 Style "K" Gates Crushers.
One No. 10 McCully Crusher.
One No. 21 Style "K" Gates Crusher.
One No. 3 Austin Stone Screen and Elevator.
One No. 5 Austin Stone Screen and Elevator.

Six 2-yard Steel Quarry Cars, end dump.
One Complete No. 8 Crushing Plant.
One 6¼ x 10 American Hoisting Engine D. C. D. D.
One No. 0 Thew Shovel with ⅝-yard dipper.
One Model 20 Marion Shovel, with 1¼-yard dipper.
One 70-ton Vulcan Shovel.
One 95-ton Bucyrus Shovel.
One 10-ton McMyler Locomotive Crane.
Two 20-ton McMyler Locomotive Cranes, 8 wheels.

Write for Our December Bulletin of Bargains in Heavy Equipment Before You Buy. A Postal-Card Brings It.

MARSH COMPANY, 971 Old Colony Building, CHICAGO, ILLINOIS

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BAG TYERS.
Miller & Co., Clifford L.

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Mineral Surfaced— Needs No Painting

EVERYTHING about Amatite appeals to the man with common sense. He can see its superiority at once—the real mineral surface which never needs painting; the two layers of Pitch which is the greatest waterproofing material known; the two layers of heavy Tarred Felt—all these contribute to the popularity of Amatite.

We can make Amatite better and cheaper than anyone else on account of our greater facilities, and consequently we sell it at a surprisingly low figure.

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EVERY DEALER SHOULD PUSH IT

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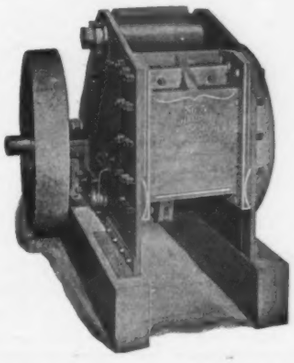
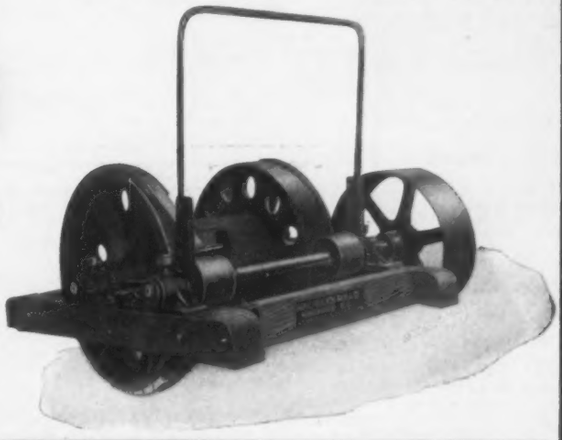
Increase the Output and Efficiency of Your Quarry

By using CHAMPION Rock Crushers, Elevators, Screens, Dump Cars, Hoisting Drums, Wire Cable, Conveyors, Bin Chutes, Engines and Boilers. Everything for the quarryman furnished at right prices. Our Dump Cars are Durable and Economical. Made in two sizes.

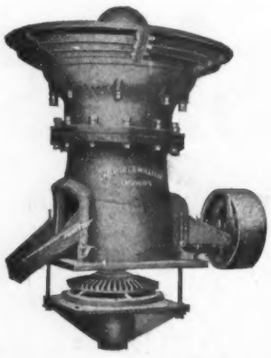


Champion Steel Rock Crushers are made in six sizes, from 75 to 600 tons daily capacity. We design and equip quarry plants of any capacity. Our Crushers do more work at less cost for repairs than any others. Catalog will interest you.

Count on quality when you consider Champion Quarry Machinery. We aim to furnish nothing but the best. Our winding drum is a low-priced, durable and economical appliance for drawing material from the quarry to the Crusher. Powerful and always to be depended upon.



The Good Roads Machinery Company, Kennett Square, Pa.



Our Gyratory Crusher

is giving entire satisfaction wherever installed, due to ball and socket self-aligning eccentric and the perfect design of the entire crusher.

ONE OPERATOR SAYS:

The No. 6 Crusher bought of you last year is giving perfect **satisfaction.** We ran it all last season without a **minute's delay or expense,** and think it superior in every way to our other crusher.

ANOTHER ONE SAYS:

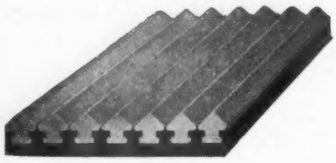
We installed a No. 8 Kennedy Crusher last spring, and operated it a good part of the season, and must say I consider it the best crusher on the market.

We Manufacture the Kennedy Gyratory Crusher under exclusive contract.

Chalmers & Williams, Inc. General Offices and Works: **Chicago Heights, Ill.**

A Tempered Steel Jaw Plate for Blake Type Crushers

CHROME STEEL WORKS
CHROME, N.J., U.S.A.
(FORMERLY OF BROOKLYN, N.Y.)



Canda Tempered Steel Crusher Jaw Plate

Patented March 31, 1908

The Canda Tempered Steel Jaw Plate for Blake Crushers is composed of Forged and Rolled Chrome Steel Bars, cast-welded and also mechanically interlocked into a backing of tough steel—and the wearing face is tempered to extreme hardness. We are equipped to supply both corrugated and smooth face plates for all sizes and makes of Blake Crushers.

The Canda method of cast-welding forged and tempered steel bars into a mild and tough Steel Backing, is adapted also to the construction of Cone Heads for Gyratory Crushers, Segments for Corrugated Rolls, etc., etc.

Our products in this line are sold with our special guarantee that they *will wear longer, give better satisfaction and, at our price, prove more economical than any others now on the market.*

—Send for Descriptive Pamphlet—

Represented by

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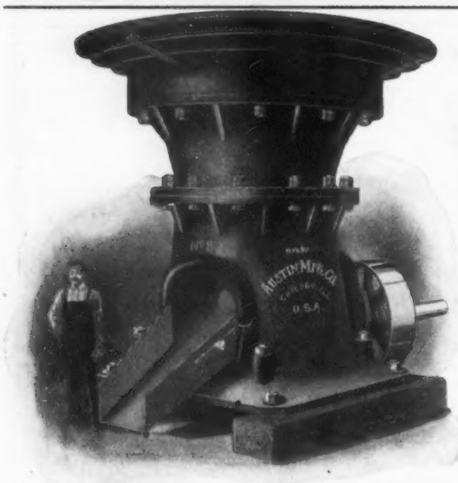

AUSTIN GYRATORY CRUSHER

The World's leading rock and ore breaker.

The only self lubricating Crusher.

The only Crusher having double countershaft bearing.

Simple construction, correct design.

Thousands in use.

Plans and specifications furnished for any sized plant.

Send for Catalogue No. 17.

All experienced users recognize that the efficiency and durability of the suspension bearing as applied to Gyratory Crushers, depends upon locating the bearing at the point of least gyration or movement of the main shaft.

A perfect suspension can be made only by locating the bearing at the point where there is no movement of the shaft. That being a mechanical impossibility it follows that superiority is obtained in fixing the bearing at the point of least gyration of the shaft.

As the accompanying cut will show, the movement of the shaft at the point of suspension in the Austin Crusher is reduced to the minimum and practically eliminated. Consequently the highest possible degree of efficiency and durability is obtained.

Austin Manufacturing Co., Chicago

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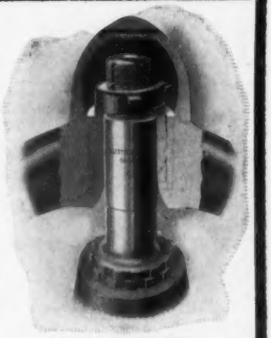

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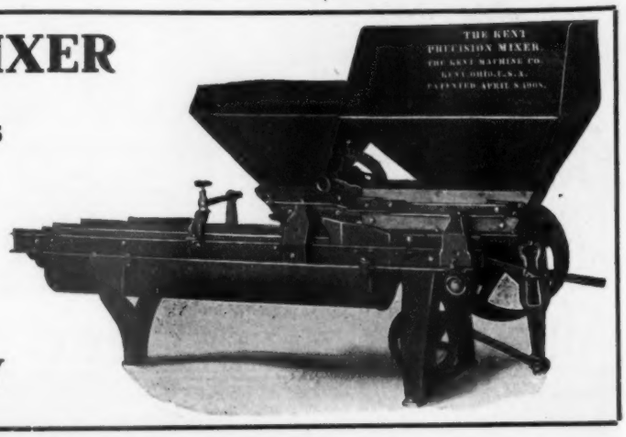
THE "KENT" PRECISION MIXER

(STATIONARY TYPE)

Built in Four Sizes and Suited to ALL CLASSES of Plants Making Concrete Products

The **"Kent"** is the **only mixer made** that will operate with **absolute certainty** when being charged by **gravity** from bins above the hoppers holding large quantities of materials, making it possible to run it continuously for hours at a time with little or no attention from the operator. It has a patented adjusting lever by which the output may be regulated to suit the work in hand. It measures the aggregates accurately in any proportions desired by simply adjusting the gates to the proportions wanted. Before purchasing a mixer investigate the **"Kent."** It means **money** and **satisfaction** for you.

Catalog mailed on request.



THE KENT MACHINE COMPANY

306 NORTH WATER ST., KENT, OHIO

The Gardner Crusher
Disintegrator and Pulverizer

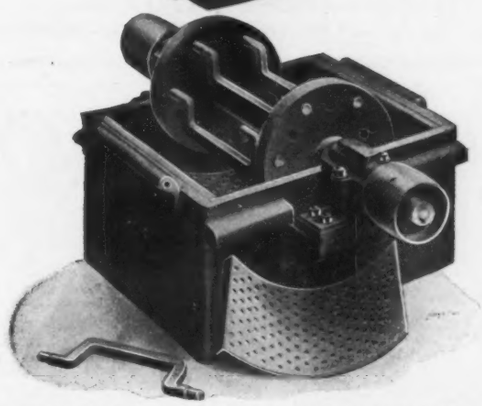
The great advantages of our CRUSHER are the following:

High Productivity — **Low Motive Power**
Small Space Occupied — **Strong Construction**
Nominal Wear — **Any Desired Fineness**
Moderate Prices

The Gardner Crusher Disintegrator and Pulverizer

is adapted for

Cement, Plaster, Quartz, Pyrites, Lime, Pozzolana Earth, Blast Furnace Cinders, Calcareous Stones, Porphyry, Granite, Emory, Corundum, Saggar from Potteries, Scoria, Hammerslag, Construction and Foundry Sand, Phosphates, Ochres, Bones, Sandstone, Silex, Bricks, Coal, Pitch, Glass, Enamels



AN IDEAL PREPARATOR FOR THE TUBE MILL.

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In order to give every facility to our customers, we have installed a Crusher for trials at our plant at 532 West 34th Street, New York City. You have only to send us a sample of your crude material and a sample of what you require when crushed. You should also specify the quantity that you desire per hour.

Our experienced engineer is at your disposal for any further explanation. *Send For Catalogue.*

The Gardner Crusher Disintegrator and Pulverizer

has these advantages:

Is the most economical of all Crushers or Pulverizers.

Its price is very moderate.

Its capacity for pulverizing is enormous compared to its size and power required.

The *Gardner Crusher* requires no special foundations and can be put up anywhere.

Any fineness required can be obtained by merely changing the screens.

Its weight is very light, so the crusher can be sent to any remote country.

With the *Gardner Crusher*, in some cases, the complete equipment of a crushing plant will be the *Gardner Crusher* and the tube mill. With this kind of an installation the larger machines No. 2 or No. 3 would be used, eliminating the preliminary breaking machines.

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Means MAXimum of ECONomy

Years of experience with the assistance of our hundreds of customers has found THE SOLUTION OF GRINDING HARD MATERIALS. The MAXECON PULVERIZER combines highest EFFICIENCY, greatest DURABILITY and assured RELIABILITY. Uses the LEAST HORSE POWER per capacity. Embodies the features of our Kent Mill with improvements that make it MAXECON.

WE DO NOT CLAIM ALL of the CREDIT for this achievement

We have enjoyed the valuable suggestions of the engineers of the Universal Portland Cement Co. (U. S. Steel Corp.), Sandusky P. C. Co., Chicago Portland C. Co., Marquette Cement Mfg. Co., Western P. C. Co., Cowham Engineering Co., Ironton P. C. Co., Alpena P. C. Co. Castalia P. C. Co., Pennsylvania P. C. Co., and many other patrons.

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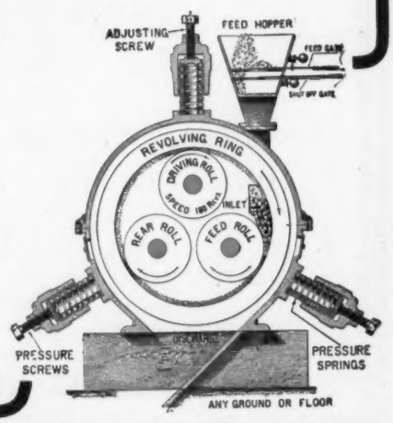
The FREE WOBBLING POUNDING RING instantly and automatically ADAPTS its position to the variations of work.

Its GRINDING ACTION is DIFFERENT than any other; besides the STRAIGHT rolling action of the rolls, the SIDE to SIDE motion of the ring makes the material subject to TWO crushing forces and DOUBLE OUTPUT results.



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LONDON, W. C., 31 HIGH HOLBORN
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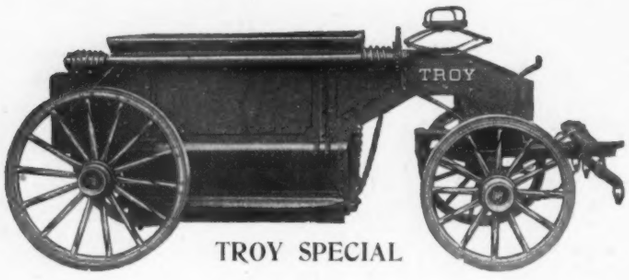
The Christmas Chuckle



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Get yourself some TROY Specials for Xmas. When you see them you will surely chuckle. So will your driver. So will your horses. And the Specials will chuckle every day you own them—a chuckle that shows they're running light and easy. Don't you want the price? ∴ ∴ Get Catalog 2 P.

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LEWISTOWN, PA.

Builders of heavy duty crushers and glass sand machinery. Glass sand plants equipped complete.

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SINGLE ROLL CRUSHERS

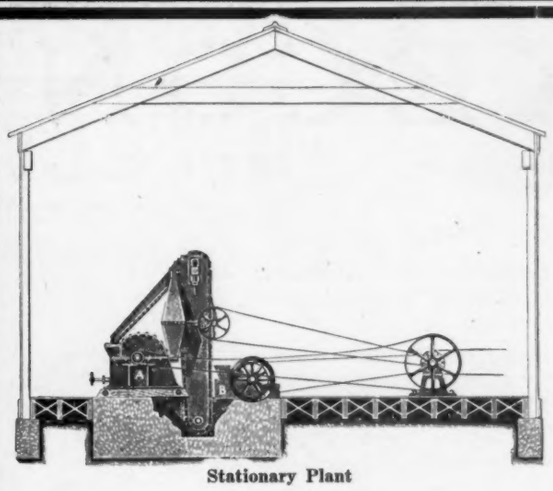
For Limestone, Phosphate Rock, Cinder, Etc.

CAPACITIES FROM 10 TO 500 TONS PER HOUR

More easily fed and makes less fines than either a jaw or gyratory crusher. Information and prices for the asking.

WE ALSO MANUFACTURE Double log washers, Ore jigs, Screens, All iron Elevators and Conveyors. Write for catalogue.

McLanahan-Stone Machine Co. Hollidaysburg, Penna.



Stationary Plant

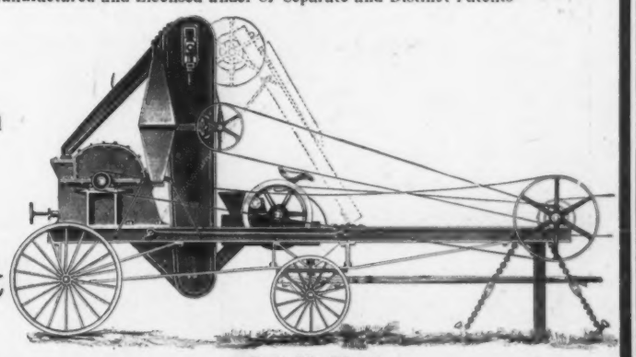
Get Into the Game

GRIND YOUR LIMESTONE SCREENINGS AND MAKE LIMESTONE FERTILIZER

What Is Now a Dead Loss to Some Quarrymen
Can Be Turned Into Good Profits

WE FURNISH COMPLETE PLANTS OF ANY CAPACITY DESIRED

Manufactured and Licensed under 87 Separate and Distinct Patents



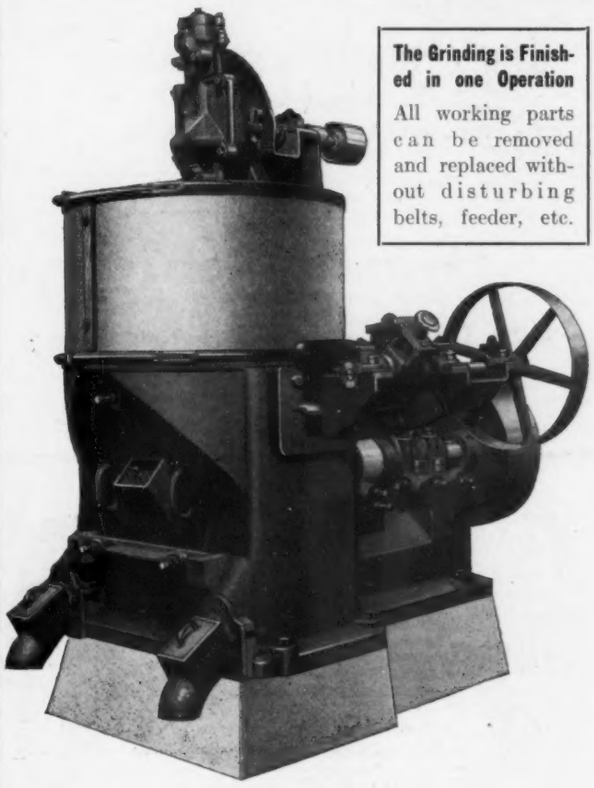
Portable Plant

We now have over 30 plants in operation

BULLETIN NO. 4 EXPLAINS THE PROPOSITION

The Williams Pat. Crusher & Pulv. Co.

ST. LOUI 2705 N. Broadway
CHICAGO: Old Colony Bldg.
SAN FRANCISCO: 428 Monadnock Bldg.



The Grinding is Finished in one Operation

All working parts can be removed and replaced without disturbing belts, feeder, etc.

BONNOT PULVERIZER

Grinds and Screens Limestone, Raw Lime and Hydrated Lime

Does it at One Operation. Gives You Any Desired Fineness

GRINDING LIME IS LARGELY A SCREENING PROPOSITION. THE BONNOT PULVERIZER HAS THE LARGEST SCREENING SURFACE AND CONSEQUENTLY THE GREATEST CAPACITY.

NO OTHER MACHINE LIKE IT IN THE ACCESSIBILITY OF SCREEN AND GRINDING PARTS.

No. 4 Catalog Explains These Advantages

THE BONNOT COMPANY

909 N. Y. Life Bldg.
KANSAS CITY, MO.

CANTON, OHIO

AMERICAN STEEL & WIRE CO'S

AMERICAN WIRE ROPE

IN ALL STANDARD FORMS OF CONSTRUCTION.
NON-SPINNING FLATTENED STRAND & FLAT MADE OF SWEDES IRON, CRUCIBLE CAST STEEL AND MONITOR PLOW STEEL.

HOISTING rope of every description for elevators, mines, coal hoists, ore hoists, conveyors, derricks, stump pullers, steam shovels, dredges, logging, ballast unloaders, etc. Towing hawsers, mooring lines, tiller rope and ships' rigging. Mine and surface haulage rope, street railway cable and power transmission rope, suspension bridge cables, cableway ropes, guy strands and sash cords. Flat rope for deep hoisting. Special rope made to order.

Copper cable and strand for all electrical purposes. Fittings and appliances for use with wire rope

Read about wire rope usage in its different requirements in *American Wire Rope News*. Gladly sent free to anyone upon request.

WE MAKE

American Wire Rope
Aeroplane Wire and Strand
Piano Wire
Mattress Wire
Weaving Wire
Broom Wire
Fence Wire
Flat Wire
Flat Cold Rolled Steel
Wire Hoops
Electrical Wires and Cables
Rail Bonds
Bale Ties
Tacks, Nails, Staples, Spikes
Barbed Wire
Woven Wire Fencing
Fence Gates
Steel Fence Posts
Concrete Reinforcement
Springs
Sulphate of Iron
Poultry Netting
Wire Rods
Juniata Horse Shoes and Calks
Shafting Cold Drawn Steel
Wire of Every Description

We issue separate catalog for each of these. Gladly furnished upon application.

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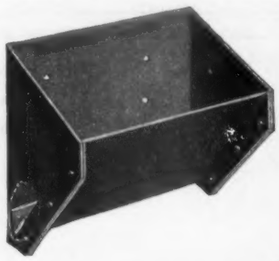
PORTLAND, ORE.	Ninth and Irving Streets
SEATTLE, WASH.	Fourth Ave. South and Conn. St.
LOS ANGELES, CAL.	Jackson and Central Avenues

NEW YORK, United States Steel Products Co., 30 Church St. Export Representatives



ELEVATOR BUCKETS

For Handling Broken Stone, Gravel, Sand, Clinker, Cement, Lime, Coal, Coke, Ores, etc., etc.

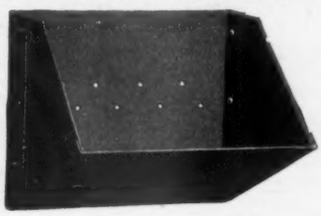
Continuous Elevator Buckets made of heavy steel for hard service, furnished in all sizes, large capacity, perfect discharge.

We also carry a complete line of **Salem, Malleable Iron** and **Caldwell-Avery** heavy seamless buckets, for prompt shipment.

Elevators, Chain and **Belt** with or without steel casings.

Helicoid and **Screw Conveyors** are the most economical means of carrying fine material.

Bearings, Shafting, Couplings, Sprocket Wheels, Pulleys, Gears, etc., can be furnished on short notice.



Allow us to quote you prices.

Catalog No. 34 is a text book on **Elevating, Conveying** and **Power-Transmitting Machinery**—Send for it.

H. W. CALDWELL & SON COMPANY
CHICAGO
Western Ave., 17th to 18th Sts.
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Hudson Terminal, 50 Church St.

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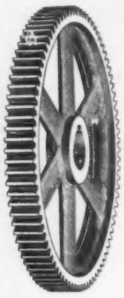
Use Our Classified Section

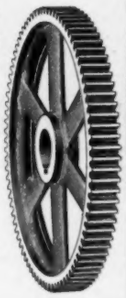
SEE PAGE 56

Nuttall Gearing

is a money saver the moment it is placed in operation



Each Nuttal gear is designed to suit the peculiar conditions under which it is to operate. Our orders for Gear and Pinion material are of sufficient tonnage that the material maker is justified in conforming exactly to our rigid specifications. Superior quality and uniformity of material are thus assured.



We buy them back if not as represented

Nuttall--Pittsburgh

When in a hurry, wire us.

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SOLID WOVEN WATER PROOF

BELTING

BELTING ECONOMY
is not secured alone by low first costs.

EFFICIENCY IN SERVICE
together with reasonable first costs makes

"NESTOR"

the most economical belt on the market for

DRIVES, CONVEYORS, AND ELEVATORS

Let us figure on your requirements
and show you convincing facts.

AGENTS IN ALL PRINCIPAL CITIES KINDLY MENTION THIS PAPER

THE AMERICAN FABRIC BELTING CO.
CLEVELAND, OHIO

LOOK! LISTEN!

LEVIATHAN SPECIAL-BLACK CONVEYOR BELTING

is a new belt that has been on the market but a few months. The demand for it has been so extraordinary that we have not up to the present time been able to meet it.

With our new factory

just finished for the exclusive manufacture of this belt, we are now in position to take all orders, and make prompt shipment. This belt is the wonder of the age for use in stone, sand and gravel plants.

Think of it!

A canvas belt of the LEVIATHAN standard with a practically indestructible ⅛ inch coating on its face to resist the wear and tear of rough materials. Write us for further particulars.

MAIN BELTING CO.

PHILADELPHIA CHICAGO NEW YORK BOSTON
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For Sale in Canada by the Main Belting Co. of Canada, Limited, 41 Common Street, Montreal.

"It looks good on the face of it."

ONE EDGE GREEN

And This **TRADE MARK** On Every Roll of

GANDY Belting

These two Identifying Marks are put there to Save You Money!

The many sad experiences we learn of every day where belt users are duped into buying one of the numerous inferior cheap imitations of **THE GANDY BELT** (red stitched cotton duck) make us more anxious to caution you to "Look for the belt with the green edge" and the trade mark shown above, every few feet of its length.

Remember, the **GANDY BELT** is backed by 34 years of success, and not only is the most durable and satisfactory belting for driving, elevating and conveying, but costs only one-third as much as leather and is 25% cheaper than rubber, yet will do the work equally as well.

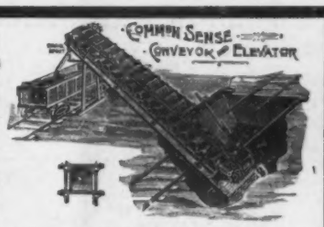
We want to send you actual sample of the **GANDY BELT,** and additional proof of the big saving this belting would be to you.

Drop us a postal today.

THE GANDY BELTING COMPANY

744 W. Pratt St., Baltimore, Md. New York Office: 88-90 Reade St.

Send for Catalog 25



THE GENERAL CRUSHED STONE CO.,
So. Bethlehem, Pennsylvania,

have been using one of our **Common Sense Elevators** for six years—capacity 400 tons an hour.

THE C. O. BARTLETT & SNOW CO. CLEVELAND OHIO

"R. F. & C." Solid Woven Rubber Belt

Eliminates every rubber belt defect. Send for pamphlet "A Wireless On Rubber Belting."

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FOR IMMEDIATE SHIPMENT NEW AND REBUILT MACHINERY FOR CONTRACTORS AND QUARRY EQUIPMENT.

Two Rebuilt Western and Two Rebuilt New Era Elevating Graders, good as new. Twenty Rebuilt Western Wagons. Three 13-Ton Stone Bins. Two No. 2 Gates Crushers "D" Style. Rebuilt Jaw Crushers and Reversible Road Machines of Standard Makes.

HEADQUARTERS FOR Concrete Mixers, Wheelbarrows, Gasoline Engines, Gyratory and Jaw Crushers, Cars, Hoists and everything in Quarry Equipment.

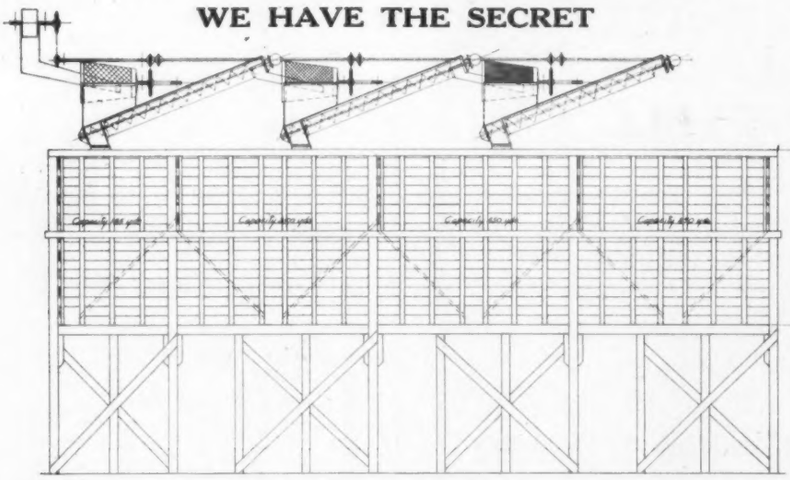
Write us for catalog and prices.

THE WILLIAMS CONTRACTORS' SUPPLY CO., Columbus, Ohio.

HAVE YOU "TRIPLETS"?

Let use show you how to use "TRIPLETS"

WE HAVE THE SECRET



WE MAKE THEM

WE KNOW HOW

THE WEBSTER MFG. COMPANY

DESIGNERS AND BUILDERS

of Washing, Screening, Conveying and Storage Systems

FISHER BUILDING CHICAGO

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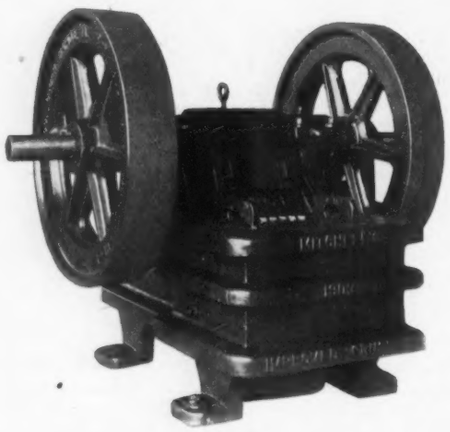

There Are Reasons for Mitchell Crusher Superiority

Study the cross sectional view of the Mitchell Crusher and you will see at a glance why it is different from any other crushing machine. The motion of the movable jaw tends to produce a more uniform product with a very great saving in power. The crusher is *adjusted in a jiffy* to produce *material in any size* from 2½" even as fine as sand.

There are only 14 parts which greatly eliminates the possibility of wear and breakage. We can show you where you can profit by using a Mitchell Crusher.

State your proposition clearly. Let us know what you have to crush, how fine you want to crush it, and what capacity you can use in a 10 hour day.

You will be glad to have our 60-page catalog describing our 15 sizes. Send for catalog 7 R.

EUREKA STONE AND ORE CRUSHER CO.

CEDAR RAPIDS, IOWA

GRAVEL WASHING PLANTS

—Ask—

CHICAGO GRAVEL CO., - Chicago, Ill.
JOLIET S. & G. CO., - Plainfield, Ill.
PETERSON & WRIGHT, - Akron, Ohio
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About Their Plants

Stone Crushing Cement and Power Plants

J. C. Buckbee Company, Engineers, CHICAGO

FARREL ORE AND ROCK CRUSHER

USED IN ALL PARTS OF THE WORLD—LARGE RECEIVING CAPACITY—SPECIALLY DESIGNED AND CONSTRUCTED FOR HARDEST KIND OF WORK

COMPLETE CRUSHING PLANTS OUR SPECIALTY

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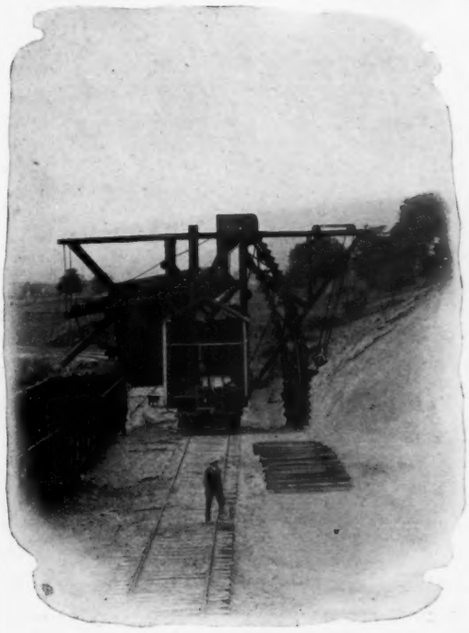
EARLE C. BACON, ENGINEER.

FARREL FOUNDRY & MACHINE CO. HAVEMEYER BUILDING, NEW YORK

Sand and Gravel, Washed and Screened,



Can Now Be Placed in Separate Cars Cheaper Than You Used to Load Bank-Run Gravel, If You Use Modern Equipment.

Every owner of a gravel pit, every concrete man who has sand and gravel on his property, can make this material show a good profit by so handling it as to make it good material for concrete work. It's all in the handling. If you can dig the gravel economically, wash it free from clay, loam and other impurities, and deliver it with sand and gravel screened apart, you can command a better price.

Improved Automatic Elevators

Will Dig, Wash, Screen and Load Sand and Gravel for Less Money Than Any Other Known Device.

The machine shown here is working on a bank of gravel, cleaning the face. In operation, the elevator, which runs by its own power, stands on one track, discharging sand into cars on the next track and gravel into cars on a third track. Material may be delivered in this way, or bank run may be loaded into the cars.

Get Our Booklet on the Economical Production of Sand and Gravel
Copy Sent to Any Address

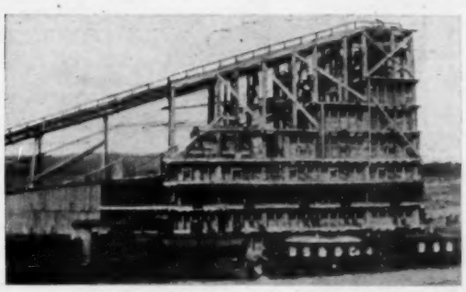
SHOEMAKER & CASPARIS
NEWCOMERSTOWN, OHIO

Any One Interested in Excavating and Screening Sand and Gravel for Concrete Work, Please Address:
W. D. Beers, Engineer, for Shoemaker & Casparis, Room 701, 537 So. Dearborn St., Chicago, Ill.

We Equipped More GRAVEL WASHING PLANTS During 1911 Than Any Other Company

WE MADE GOOD ON ALL

Stone Crushing Plants
Sand and Gravel Plants
Lime Plants
Conveying Systems



Can You Imagine Anything Better

Than a Plant Equipped with the Improved Conical Quick-Change Washing Screens, Handy, Efficient, Reliable and the Belt Conveyors with Indestructible Heavy Steel Idler Pulleys, and Separating Boxes which Automatically take the Sand from the Muddy Water?

Ask the following people how they like our machinery:

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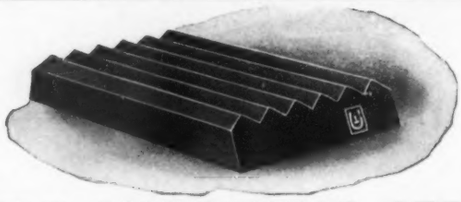
Atlas Sand & Gravel Co. - Columbus, Ohio

We can possibly refer you to others in your vicinity — Write us.

RAYMOND W. DULL & COMPANY
AURORA, ILLINOIS



TITAN MANGANESE STEEL

Unequaled for wearing parts of Jaw Crushers, Gyratory Crushers, Cement Machinery, Coal Breaking Machinery, Steam Shovels and Dredges. *Send us your inquiries.*

TITAN STEEL CASTING CO.
NEWARK, NEW JERSEY
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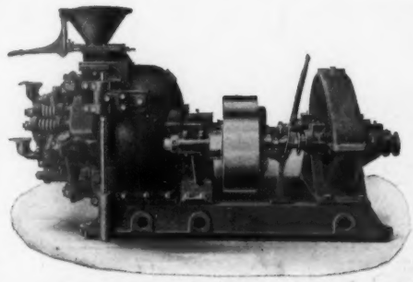
RICHMOND BOSTON

STURTEVANT
Ring-Roll Pulverizer



For Cement, Limestone, Phosphate, Quartz Granite, etc.

Take 1½ in. feed. Product 16 to 100 mesh. Output 1 to 15 tons per hour. Horse power from 15 to 45.

Only Four Wearing Parts
Last from 6 to 18 Months

Cost of Grinding less than any other. No slip, no rub, no fans, scrapers, plows, pushers or shields. No screens to clog or tear. A Simple and Accessible Grinder.

Sold on "Sale or Return" Contract

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Sturtevant Mill Co., Boston, Mass.

TRUE MANGANESE STEEL CASTINGS

Wear Longer
Withstand Shock Better

FOR WEARING PARTS OF:

CEMENT MILL MACHINERY, JAW AND GYRATORY CRUSHERS, STEAM SHOVELS, ETC.

Also, Open Hearth Steel Castings and Alloys—Vanadium, Nickel, Etc.

AMERICAN STEEL FOUNDRIES
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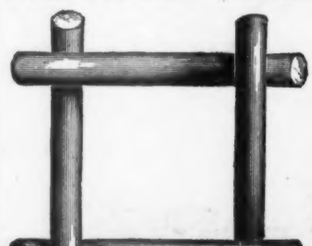
BUFFALO WIRE WORKS CO.
BUFFALO, N. Y.



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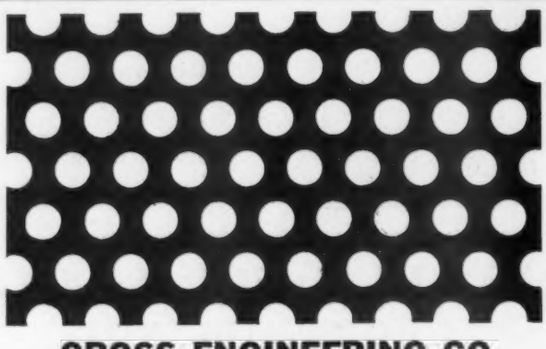
Wire Cloth
From the coarsest to the finest, for all purposes,
Also
WIRE CONCRETE REINFORCEMENT, WIRE WORK of all kinds, CORRUGATED WIRE "LATHING"

Send for Our No. 416 Catalogue.

PERFORATED METALS

Our Perforated Products have a reputation for accuracy and general high quality, our deliveries are prompt, and prices the lowest. This is why we number among our customers so many of the largest users of Perforated Metals throughout the United States.

WE SOLICIT YOUR INQUIRIES



CROSS ENGINEERING CO.
CARBONDALE, PA.

SCREENS

OF EVERY DESCRIPTION
FOR
STONE GRAVEL CEMENT
COAL COKE
ETC, ETC.

SPECIAL HIGH CARBON STEEL

Adapted for the above operations, will be furnished at no greater cost than standard steel plates.

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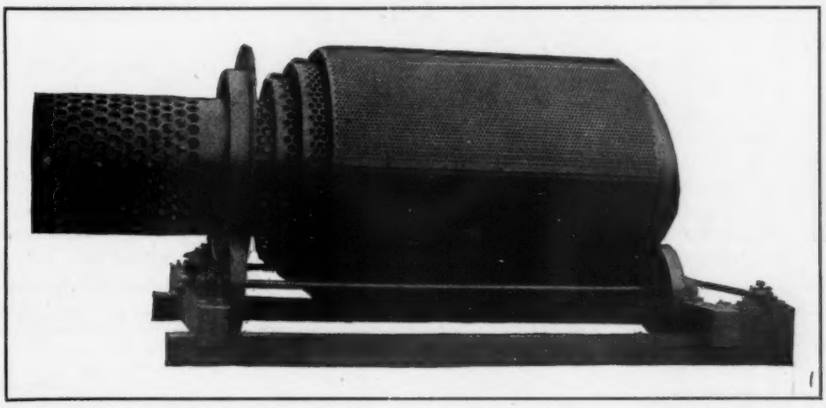
JOHN O'LAUGHLIN'S SCREEN



made solely by **Johnston & Chapman,** is the

ONLY SCREEN

on the market for wide-awake quarry-men and miners, who want to separate crushed granite, limestone or other minerals, gravel, sand, coal or coke. It will soon earn its cost in saving of repairs, and maintenance, and reduced power, and will do more and cleaner work than any other cylindrical screen of like area. No one can afford to keep old traps in use when the **O'Laughlin** installed

NOW

will from the moment it starts give a better and larger product, and a big interest on your investement in continuous saving in cost of repairs, renewals, and power. For particulars address:

The advantages of these screens are described in detail in a circular which WE WILL MAIL TO ANY ADDRESS. Mr. John O'Laughlin, the inventor, has designed many notable improvements in rock-drilling, quarrying, crushing and screening machinery, and uses these improved screens in his own crushing plants, which others have declared "to be the most perfect in existence in every detail." The O'Laughlin Screen is an important factor in the most modern and perfect stone-crushing plant.

JOHNSTON & CHAPMAN CO.

Corner Francisco and Carroll Ave., Chicago, Ill.

Perforators of Sheet Metals, Flat, Cylindrical, and Conical Perforated Screen Plates for Quarries, Mines, Reduction Works, Mills and all Industrial Purposes.

SCREENS

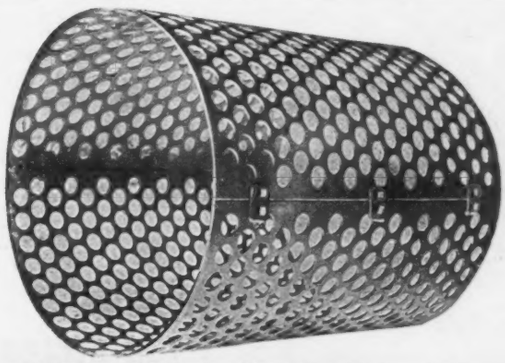
If you are interested in

Perforated Screens

and

Have Tried All the Rest, Why Not Try the Best?

Let us supply you with **our screens,** which are made from a **special Hard Steel,** especially adapted for **stone, ore, gravel, sand, etc.**



IT WILL PAY YOU TO INVESTIGATE

PRICE, MATERIAL and DELIVERIES Are Right

Revolving Screens, Suspension Screens
Trunion Screens, Shaker Screens
Hexagonal Screens, Jump Screens

If you don't see the screen you are looking for here, ask for it. We make it.

We Solicit Your Inquiries

BECKLEY PERFORATING CO., Garwood, N. J.

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CARS —— SCREENS —— ELEVATORS

Buckets

Stone

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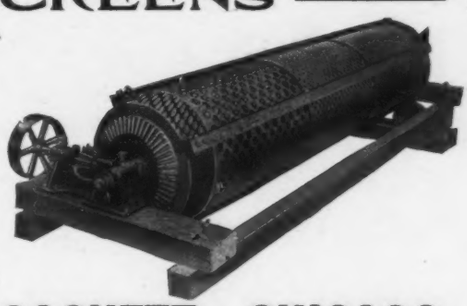

Switches

Hoists

Portable Track

We are prepared to quote you on anything for your Quarry or Gravel Plant. Before placing your order be sure and get our Catalogue 31-R, and also our Prices and Deliveries.

If you are "from Missouri" or anywhere else "We can show you."

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"SACKETT" { High Quality / Low Price / Prompt Delivery

Deep Blast Hole Drilling

Is accomplished more economically than by any other method with the

"American" Drilling Machines

There is 40 years' experience behind these drills—they are standard.

Where electric power is available, equipped with motor they form the most portable and economical drill for quarry use.

Equipped with any power they are backed by the experience and reputation of the world's oldest and largest builders of this kind of drilling machinery.

Tell us your blast hole requirements. We have 59 regular styles and sizes of machines for your selection, made in types to meet every possible condition of work.

Write for our new catalog No. 105, the most complete "Drill-Hole" catalog ever issued.

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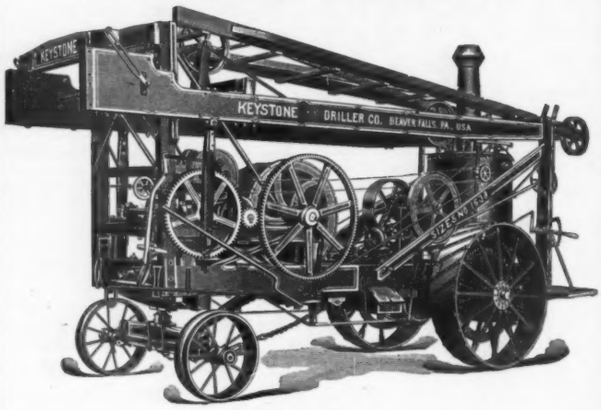
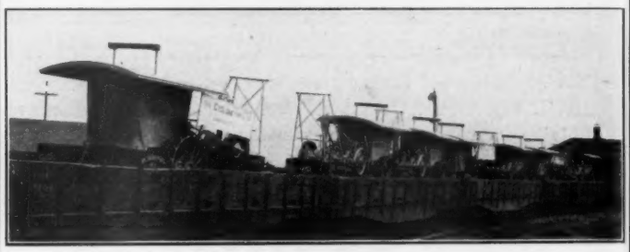
KEYSTONE
CABLE DRILLS



Catalog No. 4

Keystone Traction Drill Co.

Monadnock Bldg., CHICAGO | **BEAVER FALLS, PA., 170 Broadway, New York** | **CARTHAGE, MISSOURI**



Seven No. 14 Traction Drills.

THIS order was placed after trying out one of our drills for fourteen months in competition with seven machines of other makes; the seven other drills were discarded and Cyclones installed in their place.

If the Dolese & Shepard Company of Chicago found it profitable to discard the other machines and buy Cyclones you can save more than half the expense by buying Cyclone drills right from the start.

Why spend money experimenting when the other fellow has done that? We guarantee to drill more holes at less expense than any other drilling machine on the market. If you want us to prove it, just ask our competitors to meet us in your quarry.

THE CYCLONE QUARRY DRILL COMPANY

New York Office, 50 Church St.
Chicago Office, 419 Fisher Bldg.

ORRVILLE, OHIO

HOWELLS' Celebrated Ball Bearing Heavy Geared Post Drills

For boring anything that an Auger will penetrate.

Awarded Gold Medal, St. Louis.

We make 40 different styles machines run by Hand, Compressed Air and Electricity for boring Fire Clay, Coal, Rock, Rock Salt, Gypsum and Plaster Rock. Send today for our handsomely Illustrated Catalogue.

HOWELLS MINING DRILL CO., PLYMOUTH, PA. U. S. A.

(ESTABLISHED 1878.)

Tell 'em you saw it in ROCK PRODUCTS

The Great Cost Reducer in Stripping Over-burden

from Stone Quarries, Phosphate Rock, Coal, or similar other material, and performs the entire work at a single operation without rehandling. These are the important advantages of

THE MARION MODEL 250 REVOLVING SHOVEL

This machine is provided with an extra long boom for making wide cuts and dumping the excavated material far enough to one side so that the rock or stone thus uncovered may be taken out without being partly under the spoil bank. This eliminates the handling of the over-burden in cars and reduces the labor required to the shovel crew.

The uncovered material is mined immediately following the shovel so that when it completes one cut it can return on another, this time depositing the over-burden in the open pit where the coal, for instance, has been taken out.

The Model 250 will handle over-burden of a far greater depth and width of face than the ordinary excavator.

Proof of this economy can be shown where shovels of this type are now in actual operation.

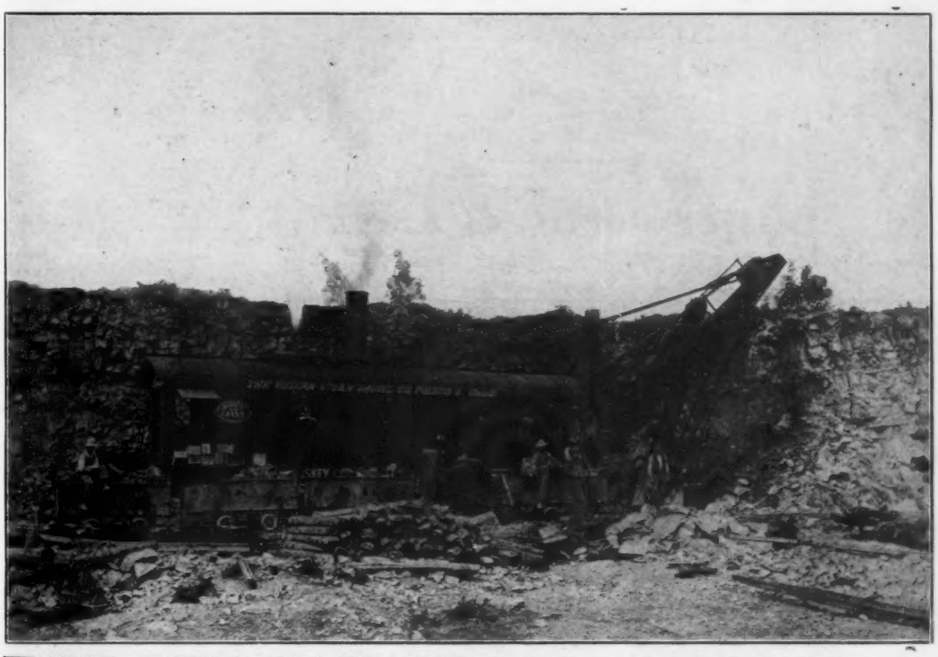
Write for Circular 250, giving more complete information.

The Marion Steam Shovel Co.

Dept. V, MARION, OHIO

CHICAGO: Monadnock Block
NEW YORK: 50 Church Street
SAN FRANCISCO: Monadnock Bldg.
MONTREAL: F. H. Hopkins & Co.
SEATTLE, WASH.: E. P. Jamison & Co.

QUALITY SHOVELS



THE SUPERIOR QUALITY of VULCAN SHOVELS is the result of years of experience.

There is nothing in excavating work that the VULCAN has not done.

The investment necessary to buy the best shovel for your purpose, demands an investigation. The VULCAN will be your first choice and your purchase.

VULCAN shovels are built in all standard sizes from 22 to 120 tons.

Revolving types in three sizes, 15 to 40 tons.

Railroad and Traction wheels, Steam or Electric Power.

We also build special High-Boom Stripping Shovels, Locomotive Cranes and Dipper Dredges.

Our catalogue and knowledge of excavating problems is yours for the asking.

THE VULCAN STEAM SHOVEL CO., Toledo, O.

EASTERN OFFICE, 50 CHURCH STREET, NEW YORK

STANDARD DESIGN LIGHT LOCOMOTIVES BUILT FOR HARD WORK

Our locomotives are built to work all day and every day, and to earn the maximum money for the owner. These locomotives are built to operate at a distance from shops and facilities for repairs. They are simple in construction with every part specially adapted to the demands upon it. This applies not only to the strength, but to wearing qualities and accessibility for inspection and renewal.

Write for catalogue No. 10040 illustrating our standard designs of small locomotives.

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2101 Beaver Avenue, Pittsburg
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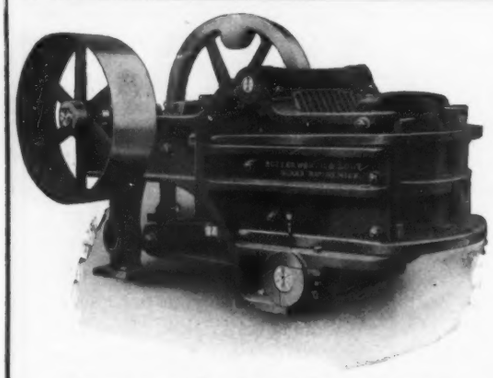
N. B. LIVERMORE & CO., Salt Lake City; San Francisco; Seattle; Portland, Oregon



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For all Rocks and Ores Softer than Granite

GYPSUM MACHINERY—We design modern Plaster Mills and make all necessary Machinery, including Kettles, Nippers, Crackers, Buhrs, Screens, Elevators, Shafting, etc.

Special Crusher-Grinders for Lime

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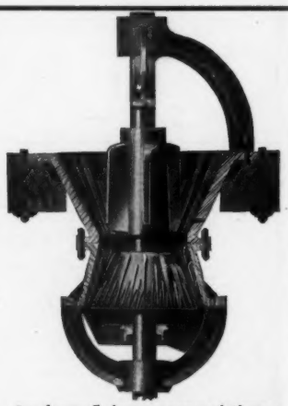

Crackers—5 sizes—many variations.

GET THE BEST

Finest Line of Gypsum Machinery

MADE

KETTLE CRUSHER NIPPERS

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MOGUL NIPPERS. OPEN DOOR POT CRUSHERS

Best Mills in the United States Have Them

McDONNELL BOILER & IRON WORKS, Des Moines, Iowa, U. S. A.

"Formerly Des Moines Mfg. & Supply Co."

An Open Letter

It Speaks Volumes! Read It.

This letter published by permission

United States Gypsum Co.,
Chicago, Ill.

Gentlemen: ONEONTA, N.Y., November 1, 1911.

You will undoubtedly be interested to know that the new "Oneonta" Hotel has been formally opened and doing a satisfactory business. You will also be pleased to know the results obtained from the U. S. Gypsum Wall Plaster used in this building.

The total amount of base coat was in excess of one thousand tons, and U. S. G. Universal Finish was used throughout for the finish coat and gave the best of satisfaction, as well as the first coat, and has caused a great deal of favorable comment.

The writer obtained this contract in competition with several other of the best brands of Wall Plaster made and both the contractor and the owners feel highly gratified by the results of this material.

We also used in the construction of this building eight carloads of U. S. G. "Pyrobar Gypsum Tile" for the fireproof partitions, which we were able to have accepted on account of their superior quality after other Gypsum blocks had been delivered on the job for this work. I consider the selection of your Pyrobar speaks very highly of its superior quality.

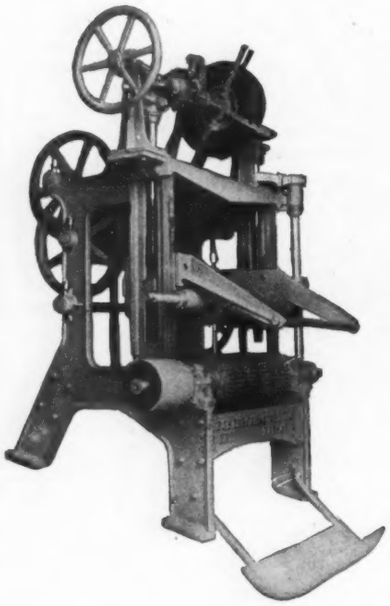
This work was a source of great satisfaction to me and I trust the same to you also.

Yours very truly,

L. P. Butts.

The Logical Lathing Material
The Best in Hard Wall Plaster

U.S.G. Products—
"The Line of Progress"—
Arms the U.S.G. Dealer
with Supremacy in Business-
Pulling Power.



Points of Interest Concerning

The Ehrsam Wood Fibre Machine

The log feeds itself to the saw. As the log decreases in diameter the Speed of the log and of the feed INCREASES AUTOMATICALLY.
In other words, the Peripheral Speed remains constant.
The feed of the log to the saw is in direct proportion to the speed of the log. This automatic uniformity of feed INSURES UNIFORMITY of FINENESS in the PRODUCT.
No frictional devices are used, none being necessary.
All the working parts are planed. All of the gears are cut from solid steel.
All of the parts are interchangeable and numbered, so that duplicate parts can be quickly obtained and easily put in position
The Saw mandril is extra heavy and made of the best crucible steel.
The journals are chain oiling. No machine can be more substantially built. Write for full information.

Okeene, Okla., June 14, 1911.

J. B. Ehrsam & Sons, Enterprise, Kans.,
Gentlemen:—Some time ago I received a letter from you asking how the wood fibre machine you shipped us is doing. Will say it is the best I ever used. In regard to any suggestions I could make as to how it might be improved, will say that I can make none, as it is O. K. Yours truly, SOUTHWEST CEMENT PLASTER CO.,
Frank Dodge, Sup't.

Manufacturers of Jaw and Rotary Crushers for Gypsum, Vibrating Screens, Hair Pickers, Wood Fibre Machines, Calcining Kettles, Plaster Mixers, Power Transmission

The Enterprise Vertical Burr Mill

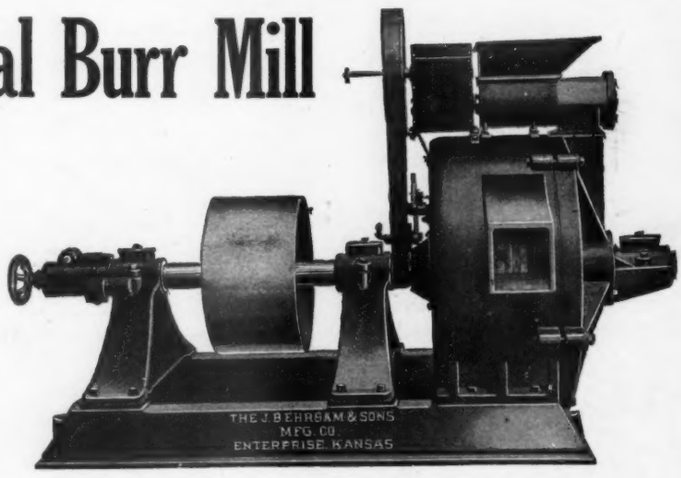
is especially designed for grinding gypsum, limestone, coal, coke, paint, rock, foundry facing, carbon, salt, and other similar substances.

It is STRONG and DURABLY built.

Has INTERCHANGEABLE STONES, which can be easily removed for dressing and replaced.

Is provided with our POSITIVE CONTROLLABLE FEEDER, which feeds an absolutely uniform stream into the mill at the required capacity.

MANY OTHER ADVANTAGES.



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Designers and Builders of

Complete Equipment for Plaster Mills

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WE MAKE THE FAMOUS

"Black Hawk"

AND

"Dacotah"

Hair and Wood Fibred Plaster

Our Plaster is pure white; uniform in color; carries more sand, works easier and makes the hardest wall. Our Mill is thoroughly equipped with the most modern machinery, and we are always in a position to make prompt shipment. We guarantee every sack of our plaster.

Dakota Plaster Co. Rapid City, S. D. Black Hawk, S. D.

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FOR

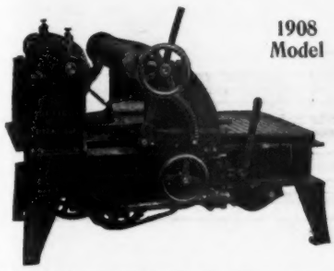
CALCINING GYPSUM

NO KETTLES USED — PLANTS IN OPERATION

Great Saving in Cost of Manufacture and Quality of Product Guaranteed.

The F. D. CUMMER & SON CO., Cleveland, O.

The Shuart-Fuller Improved Fiber Machine



1908 Model

Has an automatic, proportional increasing feed, which keeps grade of fiber uniform from start to finish, and holds machine to highest possible rate of production for the grade of fiber and number of saws. Does not begin with fiber and end with dust, nor fall off in rate of production on each log, from 40 to 80 per cent as do the ordinary non-increasing feed machines. Works logs up to 24x24 inches. No royalty string attached to sale. Pay no attention to misrepresentations of our competitors, but write for descriptive circular and terms to

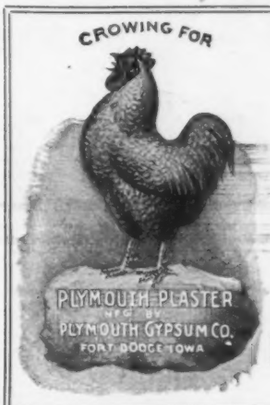
The Shuart-Fuller Mfg. Co.

ELYRIA, OHIO

THE SHUART-FULLER CO., Elyria, Ohio. St. Louis, June 17, 1907.

Gentlemen:—We are just in receipt of advice from our New Mexico plant wherein they state that the Wood Fiber Machine recently shipped by you is doing all that we have asked of it and running very fine.

ACME CEMENT PLASTER CO.,
By Jas. R. Dougan, Sec.



PLYMOUTH PLASTER
WOOD FIBER PLASTER
PLYMOUTH FIREPROOF
PARTITION BLOCKS
PLASTER BOARD
STEEL STUDDING

THE QUALITY BRANDS

WRITE US FOR PRICES AND ADVERTISING MATTER

Plymouth Gypsum Co.

Fort Dodge, Iowa

THE NATIONAL RETARDER CO.

Mills at

Webster City, Iowa
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Successors to

The Chemical Stucco Retarder Co.
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The same standard quality of retarder will be produced and marketed by the same people at the right price—only a change in name of corporation.

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Improved
Modern
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TRADE MARK
J.B. KING & CO.
FIBROUS PLASTER BOARD
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Fire-Proof
Insulating
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King's Fibrous Plaster Board

Standard Size 32″ x 36″

THE RESULT OF "TRADE DEMANDS"

STRENGTHENED to stand the GREATEST STRAIN to which such material is subjected
TOUGHENED to a woody consistency to stand NAILING AND HANDLING

SHIPMENTS made to dealers of STRAIGHT OR MIXED CAR LOADS

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SERVICE The location of our works at the greatest railroad terminus in the East and our several warehouses enable us to make **Prompt Shipments at all times.**

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NIAGARA

Wall Plasters Have Greater Covering Capacity, Work Smoother Under the Trowel and Have Greater Final Strength

Niagara Neat Cement

Niagara Sanded Mortar

Niagara Wood Fiber (Wood Pulp)

in 100-lb. Jute Sacks and 80-lb. Rope Paper Sacks. Mixed Car Loads of Wall Plasters, Hydrated Finishing Lime, Plaster Board, Land Plaster and Calcined Plaster for Finishing Purposes. These Products Mean Money to the Dealers in Builders' Supplies. Write today for prices.

NIAGARA GYPSUM COMPANY

BUFFALO, NEW YORK

ATTENTION! ARCHITECTS & DEALERS

"IT SPREADS LIKE BUTTER"

Which?= "Wheeling"

Why?= { Better Walls, Best Service, Right Prices

We want to make this, our tenth year in business, the biggest and best of all, both for our customers and ourselves mutually. Write us, Results will follow. Our Booklet "Better Walls" for the asking.
WILL YOU JOIN THE "WHEELING" FAMILY?

Wheeling Wall Plaster Co., Wheeling, W. Va.

PEERLESS

means without an equal and that is what our products are beyond the shadow of a doubt.

Peerless Plaster-Board

The Best on the Market To-day

Peerless Plaster Board has no superior on the market today. Strength, durability, and uniformity in thickness with clean cut edges are its chief virtues.

Peerless Plaster Board finished with **Peerless Plaster** make a Peerless Wall. Builders' Supply Retailers say it is the best Plaster Board manufactured. If you are "from Missouri" write us today for sample and prices.

Write today for our
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We Ship Mixed Cars of Plaster and Board

Peerless Plaster Board comes in sheets 32 inches by 36 inches.

Peerless Plaster Board is a fire retardent and an efficient sound deadener.

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Peerless Plaster Board is an insurance against cracks, buckles, and lath strains.

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FOR PLASTERING WALLS AND CEILINGS

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Not the hardest, but the toughest and best Wall Plaster made—Can be applied with less labor. Has greater covering capacity than any other similar material

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NO OCCASION TO WORRY
IF YOU USE
ILLINOIS LEATHER COMPANY'S
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EITHER CATTLE OR GOAT
STRENGTH—UNIFORMITY—RELIABILITY
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YOU CAN'T FADE 'EM

There's one "best" in every line, but that is not always best for everyone concerned. In the building trades

Ricketson's Mineral COLORS

are acknowledged to be the best choice for *everybody*. Best for the architect because purest. Best for the contractor because they go farther. Best for the owner because they never change their color.

For Mortar, Brick, Cement, Stone, Etc.
Red, Brown, Buff, Purple and Black

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Whenever You Wish to

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REMEMBER that ROCK PRODUCTS can do this for you promptly.

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will be issued each day during the Convention of **The National Builders' Supply Association, The National Lime Manufacturers' Association, The National Sand and Gravel Producers' Association** and the **Second Annual New York Cement Show** which will all be held during the week of January 29 to February 3.

¶ It affords the greatest opportunity ever offered to reach the building material industry.

¶ Advertisements now being contracted for in two or three colors on special enamel paper. Write at once for special prices and full particulars.

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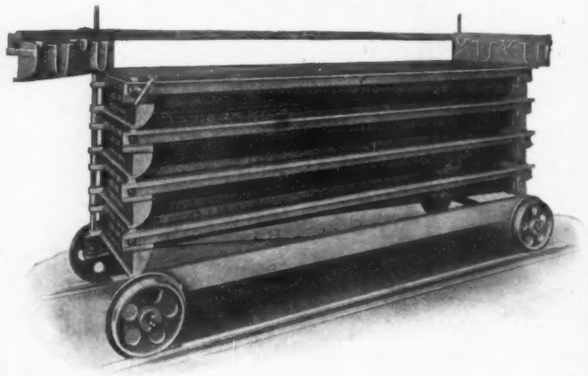
T SHAPE MAKES THEM

STRONGEST, LIGHTEST, CHEAPEST

Used by leading railroads and interurbans

Our system is absolutely the only way for making "wet mixture" posts economically. Write for our catalog.



30 and 20 poured posts made at one time in our batteries. Above shows posts and molds in top section removed and end frames thrown back on hinges. We guarantee every mold. Write for our catalog at once.

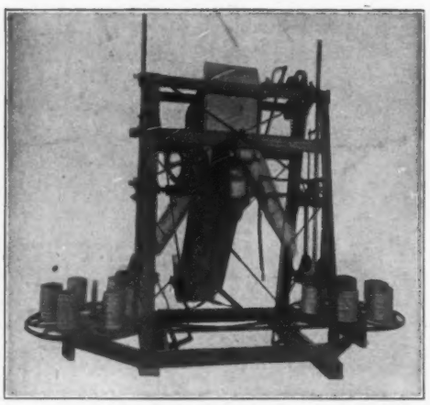
OHIO POST MOLD CO.

1348 Nicholas Bldg., TOLEDO, OHIO

See our exhibits at the New York, Chicago and Kansas City Cement Shows

THE

McCracken Double Tile Machine



The McCracken Double Tile Machine makes all sizes of cement tile from 4 to 16 in. in diameter at the rate of from 10 to 20 tile per minute. Also makes building blocks or construction tile 8x8x16 at the rate of 2000 to 3000 per ten hour day.

The machine will make two different sizes of tile at the same time or building blocks and tile at the same time, or either end of machine can be used without using the other.

The machine has no cans and runs just as smooth at high speed as when running slow. Takes less labor per 1000 tile than any other machine.

Tile are packed so hard that the large sizes can be carried without the use of pallets. Machine is very simple and strong and runs very light, and elevator can be started and stopped without stopping the machine.

See the McCracken Machine before you buy. Write to

The Sioux City Cement Machinery Company

219 4th Street, SIOUX CITY, IOWA

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ROCK PRODUCTS

Seeing is Believing and Trying is Convincing

H. J. FULLER, President — W. S. FULLER, Vice President — E. J. FULLER, Secy-Treas.

Manufacturers of
The Improved Fuller Wood Fiber Machine
The Fuller Force Feed Oil Pump
Fuller Metallic Packing For All Purposes
Special Machinery Designed and Built

The Shuart-Fuller Manufacturing Company
INCORPORATED

Telephone 211

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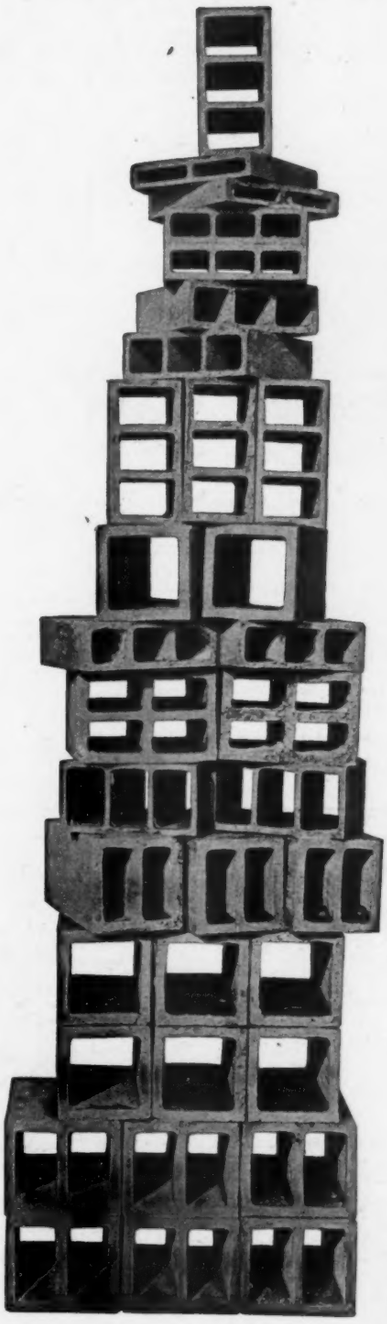

Has The First *Pauly* Concrete Tile Plant Been Successful?

This question, which is usually first asked us by interested parties, is best answered by two facts:—1. During the year of 1909, the demand in Youngstown, Ohio, could not be satisfied, and (2) the plants capacity output is sold until the middle of the summer of 1910, **in the City of Youngstown alone.** In this connection it might be stated also that 4 tiles of our most common size, 8x8x16, can be manufactured from one cubic foot of concrete, with a labor cost of 50 per cent of the cost of concrete anywhere east of the Mississppi.

A weatherproof home of fireproof material can now be built for almost wooden construction cost. These points have been clearly demonstrated in Youngstown by practical use of ***Pauly*** Concrete Structural and Fireproofing Tile, in a variety of buildings. The result gained has not only been a financial success, but also an enviable position in the estimation of the entire building public.

Persons interested in this practical and profitable phase of the concrete business, are always welcome by the The Concrete Stone & Sand Co., Youngstown, Ohio, where they will be shown every detail of the initial factory.

Our Catalog

Gives the method of manufacture, fire and compression test data, and the endorsements of local architects and other building authorities. Also many other articles and illustrations of interest to the general public. May we send you, postpaid, a copy of our Catalog?

The Concrete Stone & Sand Co.
Youngstown, Ohio.

Hercules Blocks

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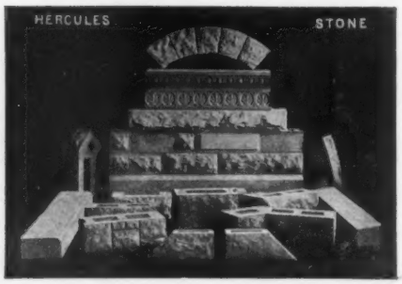

The dense non-porous blocks of Cement Stone made on

Hercules Block Machines

satisfy the eye of the most critical architect or house builder. It is one of the chief merits of the Hercules Machine that it permits blocks to be made of WET concrete. This results in greater density, greater strength and greater water proofness. The Hercules is the only machine that expands with the requirements of your business. The only machine that makes dimension stone up to Six Feet long.

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Century Cement Machine Co.
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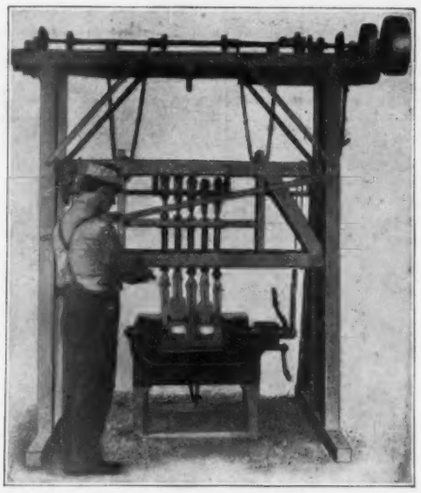

The Kramer Automatic Tamper

has proven to the many users that it does more to improve the quality of block and reduce the cost than any machine ever put on the market for concrete block making. One of the great features of the Kramer Tamper is its speed. It will strike more blows per minute than twenty-five men can and will tamp a block in ten seconds, so dense, making the consistency so plastic, that more water can be used without sagging the blocks, when withdrawing the cores, and taking them to curing room. This machine will save you from $8.00 to $12.00 per day on labor and cement, and the blocks that are tamped in the afternoon are as uniform as those tamped in the morning. Write us to-day for full particulars.

KRAMER AUTOMATIC TAMPER CO.
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PERFECTION IN BLOCK MAKING

If you wish to attain this you should combine these three important features:

Wet Process, Face Down, Damp Curing.

The PETTYJOHN INVINCIBLE Machine does this, and is the only machine that does. Tandem Invincible makes two blocks at once. Price $65.00 and up. Single Invincible, $35.00 and up. With our Triple Tier Racking System green blocks can be stacked three high direct from machine with inexpensive home-made rigging. Plans and blue prints free to customers. It economizes space, reduces off-bearing distance and above all insures slow, even, damp and perfect curing and bleaching.

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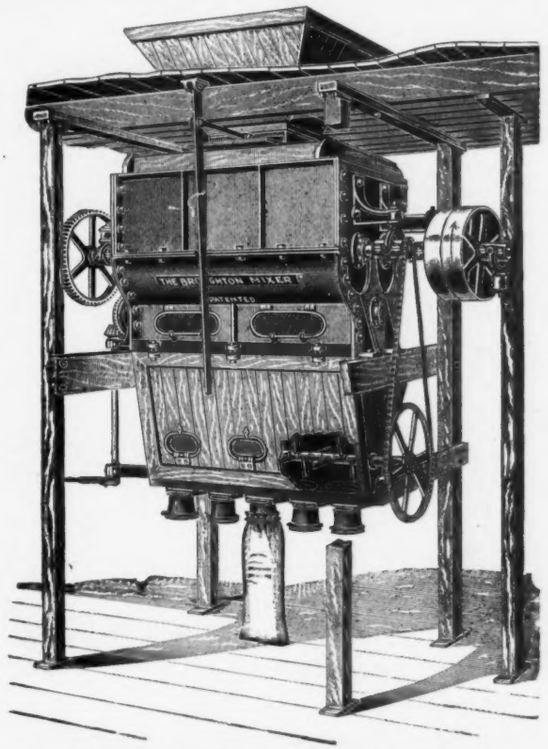

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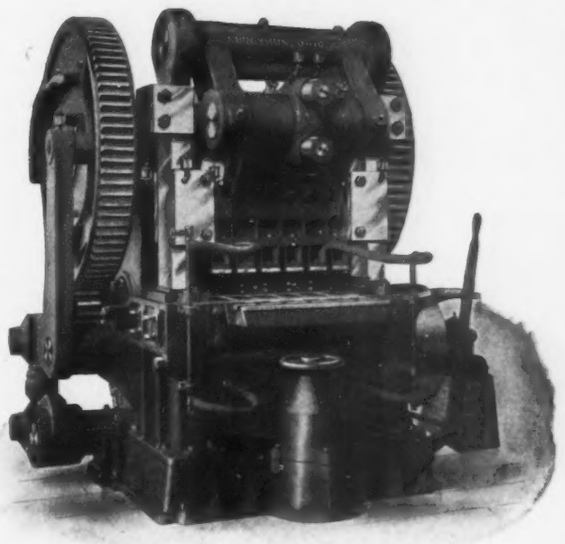

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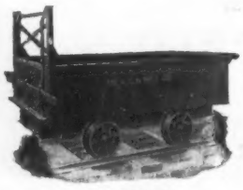

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